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What ASA Means to the Federal Government (page 161)

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MARGINAL NOTES

Sidelights on ASA's Membership Meeting –

One note of sadness marred the successful three-day meeting held by ASA for its member organizations in April (page 172). This was the fact that Cyril Ainsworth, well loved and respected Technical Director of ASA, was not present. Mr Ainsworth had fallen and suffered serious injuries that kept him in the hospital for nearly two months. He is now making a good recovery but he was sadly missed at the April meetings.

"These meetings provided me with a new and gratifying view of our entire organization," commented Arthur S. Johnson, chairman of the Standards Council. "They offered a refreshing affirmation that ours is a unique and amazingly cogent organization," he said. "The Member-Bodies, Standards Boards, and their committees, and the Standards Council have made contributions of incalculable value to the U.S. economy."

Looking to the future, Mr Johnson called attention to the words "automation," "nuclear," "solar" as examples of key words that will form the basis of the vocabularies used by industries of tomorrow. "These words and the ideas they represent offer challenges that will have to be met by engineering societies, trade associations, industry, labor, and government," he declared. "I believe earnestly that we in ASA will have no choice but to assume greater responsibility and leadership to develop American Standards needed for the national interest."

Reported at the meeting was a comment by the Conveyor Equipment Manufacturers Association on approval by ASA of the Association's manual of conveyor terms and definitions. The Association says:

"You will be interested to learn that the interest in our dictionary has picked up markedly since the approval as an American Standard. In fact, we may run short of copies before we can get the new edition printed. It shows the impetus an ASA number gives."

Speaking of the work most closely related to the future, that under the jurisdiction of the Nuclear Standards Board, Morehead Patterson, chairman of the Board pointed out, "We must give priority to items urgently needed. We must be careful to avoid being 'too little, too late' but also to avoid 'too much, too early'." He was referring to the consideration given by the Board to the recently approved American Standard Glossary of Terms in the Nuclear Field.

And concerning approval by ASA of Federal Standard 83, X-Ray Tube Focal Spot (page 167) C. D. Bean, Commissioner of the Federal Supply Service, General Services Administration, writes that the Administration is gratified at ASA's approval of this standard. "It is my hope that many other Federal Standards will achieve this degree of industrial recognition, thereby furthering our mutual efforts to develop and use industry standards," he declares.

The Front Cover —

This official U.S. Navy photo shows a hangar deck director in the process of parking an F2H Banshee Jet during training exercises aboard the Navy's huge aircraft carrier USS Forrestal.

This issue offers two articles featuring the importance of standards in the operations of the U.S. Department of Defense. The Navy's Bureau of Ships considers engineering planning of great importance to a successful standardization program, says Ellsworth Seaman (page 165).

Calling for a federal charter for the American Standards Association, Roger E. Gay describes the general program on cataloging, standardization, and inspection of the Department of Defense (page 162).

This Month's Standards Personality

John H. Chiles, Jr, known in standards circles for his work on transformers, started his career in 1926 in the Westinghouse Electric Corporation's Transformer Division as a section engineer and has been with the division ever since. Early this year he was made a vice-president of the Corporation. In the intervening years he served as manager in charge of the instrument transformer section, division manager in charge of instrument and regulator activities, and engineering manager for the entire transformer division.

The important series of American Standards on transformers, regulators, and reactors, known generally as the "C57 standards", owe a great deal to his effective work. Not only is he chairman of Sectional Committee C57 but for many years he was also chairman of its subcommittee on instrument transformers.

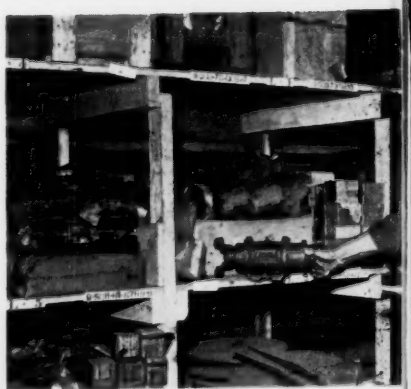
Mr Chiles explains that his first real introduction to standardization work was as chairman of a technical group on specialty transformers in the National Electrical Manufacturers Association. This was an enlightening experience. "Some 20 or more manufacturers sat down and wrote a very excellent set of standards on six or eight lines of transformers. This was a most difficult task, but one well accomplished," he declares. Later, he was a member of an Edison Electric Institute-National Electrical Manufacturers Association group that worked out standards for wound-type current transformers. These experiences represented activities that "were forging ahead in fields where standardization seemed almost impossible and yet they were but the stepping stones to the present," he comments.

Those who know Mr Chiles personally declare that his calm, soft-spoken manner does not mean that he is relaxed or that he has a "let things take care of themselves" attitude. This manner only conceals the fact that Mr Chiles is one who gets things done and leaves as little as possible to chance in doing so. His quiet persistence is not confined to his business activities, either. Recently he was given the task of raising what seemed to be an "impossible" sum of money for a church building fund. In what his colleagues call his usual fashion he rounded up the full amount with some to spare.

Mr Chiles' early life was spent on a farm in Tennessee where he tinkered with farm machinery. He attended high school in Fredericksburg, Virginia, and obtained his degree in electrical engineering from Virgina Polytechnic Institute. He is a Fellow of the American Institute of Electrical Engineers.

His interest in tinkering has now been transferred to his hundred-year-old house, bought 18 years ago. The house showed promise but was badly in need of repair. Since that time Mr Chiles has spent his spare time in refurbishing both house and grounds, and he is justly proud of the results.

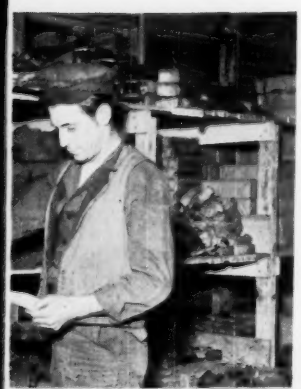
What ASA Means



to the Federal Government

by **Roger E. Gay**

When this paper was presented, Mr Gay was Director of Cataloging, Standardization, and Inspection, Office of Assistant Secretary of Defense (Supply and Logistics), U.S. Department of Defense. He is a past president of the American Standards Association. Mr Gay was guest speaker at the luncheon meeting of the Member-Bodies and Associate Members of the American Standards Association, April 25, 1957.



Some examples of use of standards *by U.S. Navy, Army, and Air Force — USS Lexington refueling from tanker in mid-ocean; Air Force planes repaired at out-of-U.S. bases; material in Signal Supply warehouse sorted for quick use; parts for rebuilding damaged vehicles available in Ordnance stockroom for use in Korea.*

THE Department of Defense has nine offices, each headed by an assistant secretary, plus a General Counsel. If the Department were an industrial concern, these men would probably be called its corporate vice-presidents. One of the nine offices is that of Supply and Logistics, headed by Assistant Secretary Perkins McGuire.

As one of the five directors under Mr McGuire, my job has been to head up three divisions — those of cataloging, standardization, and inspection. In industry, my job would probably be described as that of general manager.

Until a few years ago, the 14 major military supply systems used individual and different systems of identification, classification, and stock numbering. Each system had been developed, for the most part, independ-

ently of the others. Little or no uniformity existed between them.

The objective of the Federal Cataloging Program initiated in July, 1952, was to establish a single identification and stock numbering system for all of the services. This would replace the different identification systems in use. It would give a single name, identification, classification, and stock number for each item in all of the 14 supply systems. This would provide two major benefits — greater efficiency in day-to-day supply operations, and a basic foundation for long-range improvements in the total logistic organization and concepts of the Defense Department.

This program was begun and conducted under very explicit orders from the Congress of the United States known as Public Law 436, accompanied by an equally explicit eleven-page directive of October 15, 1954, signed by Secretary Charles E. Wilson. Both of those documents are written in clear, free-flowing, commanding English.

The most important thing that I can tell you about this Federal Cataloging System is that it has now been completed. A single identification and cataloging system has in fact been established and is now being used for all the millions of items of supply used in the Army, Navy, Air Force, and Marine Corps. This is probably the biggest and most significant program ever undertaken in military logistics.

From one point of view, there are only two kinds of military items. One is items that are being researched and the other is items that are obsolescent. But from a more practical point of view, several million different articles are being purchased. About 3,200,000 items, in fact, have been classified. Each has been assigned a number that will remain with it as long as it is used by the services. These, of course, are items subject to repetitive procurement, storage, distribution, issue, or use — the "buy" and "stocked" items on which we maintain system control. This work has been done in close cooperation with the General Services Administration.

The Federal Cataloging System early this year shifted to the maintenance phase. This, as you can readily see, is a never-ending job. It is estimated that the services procure about 600,000 new items each year. As many as 300,000 revisions to existing items will take place each year, and up to 150,000 items will drop out of the supply systems. In each of these instances, the Federal Catalog System must respond immediately with the correct identification data.

Having completed the identification phase of this program, we are now about half way through the conversion phase, which is scheduled to be completed in December of next year. This involves the physical marking of supplies and material on hand according to their now-proper identification numbers.

The cost of this program to date has been about $300 million.

You may wonder at this point to what extent this cataloging work done by the Defense Department applies to civilian items procured by the other Federal departments. The Defense Department, to be sure, is interested only in those items it buys and uses. That, however, includes just about everything *anybody* buys and uses.

As standards people, you are well aware of the crucial importance of a single cataloging system to any work you want to undertake in standards. You realize that you cannot standardize until you know what you have and what you are buying. The Defense Department has an inventory of about $100 billion. It is conducting the world's largest buying operation. The Federal Catalog System is the base for the standardization program now being carried on with reference to this inventory and this buying.

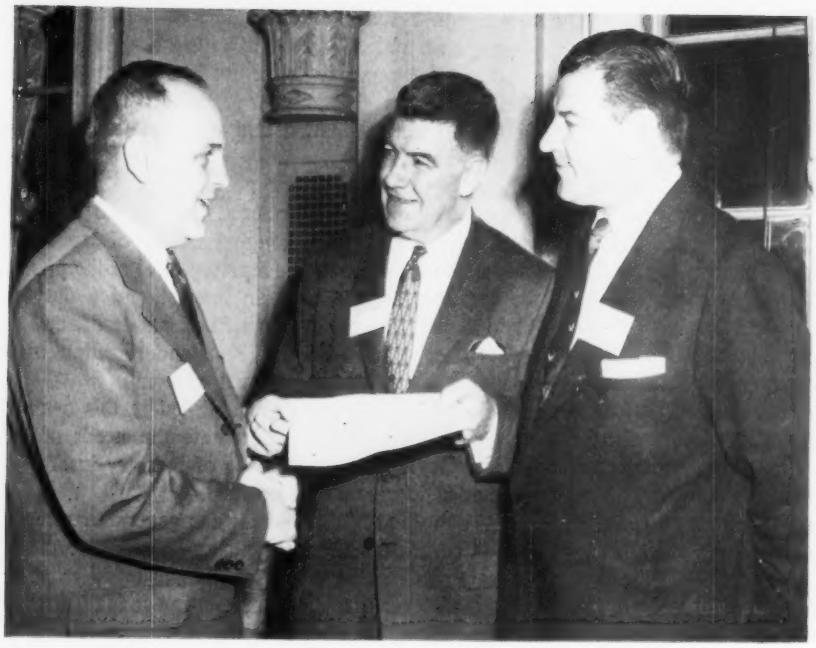
Before our present program, the military services had attacked standardization on a cash basis. They undertook standardization projects for individual items. But there was no long-range program for covering everything that the Defense Department buys. These projects were concentrated almost entirely on short-term progress and putting out day-to-day fires. Something like 2,600 projects begun under the old standardization approach are still on the books. They are now being converted into an integrated Defense Standardization Program—one program for the three military departments.

The new Defense Standardization Program covers all supply items, compared to the former method of tackling only certain items. The way we have gone about dividing this big job among the military departments is to assign them standardization responsibility on the basis of classes of supply as they were developed in the Federal Catalog Program.

Some 500 commodity classes or groups make up the Federal Supply Classification. Each of these FSC classes covers a "family" of related items. A "family" might consist of thousands of separate items. Together, these 500 classes add up to all the items bought, stored, and distributed in the military supply systems. Classes were divided among the military departments according to their major supply interest, their special mission, and their technical ability to achieve standardization in a particular commodity group.

Each department is responsible for achieving and maintaining standardization of the commodity classes for which it has the basic responsibility. For instance, Group 59, Components of Electric and Electronic Equipment, has been assigned to the Signal Corps. Standardization for food procurement has been assigned to the Quartermaster Corps. The Navy is responsible for standardization of paint.

Each fiscal year we give the departments a work schedule of FSC classes. This schedule requires them to come up with a detailed plan for doing the job in each commodity class. A detailed plan is a blueprint of a single Department of Defense approach to completing the necessary study, analysis, and engineering



Willis MacLeod *of the Government's General Services Administration (center) here receives from ASA's President H. Thomas Hallowell, Jr. the first Federal Standard approved by ASA as American Standard. Title is X-Ray Tube Focal Spot, Method of Measurement, Federal Standard 83; ASA C90.1-1957. Past-President Roger E. Gay looks on (right). Mr. MacLeod is Director, Standardization Division, Federal Supply Services, GSA.*

that go into standardization. It tells us what technical services, bureaus, or commands of the military departments will be involved in the standardization process. The detailed plan also lets us know if coordination with industry will be needed and with what segments. And it gives a schedule of the projected workload in each class, based on the estimated number of individual projects that will be required to accomplish standardization.

To date, the military departments have begun working on detailed standardization plans for 227 of the 535 Federal Supply Classes. A total of 16 plans have been finished and submitted to the Office of the Assistant Secretary for approval. Completion of detailed plans for all FSC classes assigned so far to the military departments is scheduled for the end of fiscal year 1961.

Now let me read you these key sentences from the Department of Defense under which we work.

"In the development of Federal and military specifications and standards, commercial end items and component parts will be used to the maximum degree practicable. Commercial items will be adopted without modification unless such procedure will not satisfy military requirements . . .

"Nationally recognized industry and technical society standards and specifications shall be used to the maximum extent practicable in the design and development of material and in the preparation of military and Federal standards and specifications . . ."

This cooperation—this participation with industry—may take place in different areas and in various forms. It is found in the relationships of government people to the engineers and officers of individual companies. It is found in the work done by government people on the committees of technical societies and trade associations. More than 1,000 government people are serving on some 500 committees of the ASME, ASTM, AIEE, SAE, NEMA, RETMA,[1] and others.

There is and always has been a high degree of cooperation between government people and your federation of trade associations and technical societies, the American Standards Association. At one time, ten Federal departments or their equivalent were Member-Bodies of ASA, and a total of 66 bureaus and agencies were participating in the work of its committees. One of them—the National Bureau of Standards—had taken part in the development of at least half of the American Standards then existing. The chairman of the Standards Council was a representative of the Department of Commerce.

In 1948 this government-industry cooperation was interrupted. For involved legal reasons having to do with individual personal liability for group action, the Member-Bodies voted to incorporate the ASA under the laws of the State of New York. At the same time, it was decided, because of the nature of the organization, to seek federal incorporation through an act of Congress.

At that point, all the Federal departments withdrew their membership in ASA on grounds that they could not properly belong to a state-incorporated association. In the words of Senator Ralph Flanders of Vermont, "Thus was pulled from the structure of ASA a solid

[1]American Society of Mechanical Engineers; American Society for Testing Materials; American Institute of Electrical Engineers; Society of Automotive Engineers; National Electrical Manufacturers Association; Radio-Electronics-Television Manufacturers Association.

group of ten foundation stones." In the words of a standards man whom I will not name, "They killed the cow because they were afraid it might get tuberculosis."

The government people serving on ASA committees were instructed to act only in a liaison status, to cast no votes, and to take part in no ASA administrative decisions.

This interruption lasted for almost six years. Both government and industry lost by the interruption, but it seems clear to me that of the two, government lost the more.

Federal policy was again reversed by the Directive of September, 1954. Government people resumed their voting status and their friendly, cooperative relationship. Today, 359 of them are working on ASA committees. The Federal agencies are using American Standards to good advantage in many fields. Several Federal specifications have recently been submitted to the American Standards Association for approval as American Standards.

The Federal agencies, however, are still not full-fledged members of ASA in their present status. They have voting rights and responsibility for the technical content of American Standards; but they have no responsibility for the administration of ASA itself. Apparently such outright membership is not possible until ASA is federally incorporated. ASA has sought a charter similar to that given the American Red Cross, the National Academy of Science, the Carnegie Institution of Washington, the American Social Science Association, and scores of other public service organizations. I understand that under such a charter, if granted, the national clearinghouse function and the basic consensus principle of ASA would be preserved, and that there would be no question of financial support from the Federal agencies, since that is realistically impossible.

As I see it, there are three powerful reasons why the Government should support and participate in the work of the American Standards Association and its committees.

First, Government is the nation's largest purchaser of goods and services. If national standards can be developed with its help, which meet the Government's needs and at the same time meet the needs of private industry and commerce, then mass production based on such standards will assure a quality product at an optimum price. The Government, moreover, will have received the free services of the best brains that can be brought together to develop standards in any given field—thousands of industry brains which it could not otherwise command. But there is no audience in America that understands better than this one the importance of national standards to efficient, economical Federal procurement.

Secondly, the Government is in possession of much technical information developed through its tax-supported research, testing, and fact-finding facilities. That information belongs to the public as well as to the Government, and standards are a main channel through which it can be passed on for use by appropriate technical committees. Government participation is necessary for the correct evaluation and interpretation of such information.

Finally, the Government must play a key role as protector of the public interest. The public has few ways, other than through its government, of expressing its ideas and desires. As the representative of the public, the Government has both an interest and a duty to take full part in the development of standards, and to assist other groups to promote standardization as a means of advancing the national economy.

ASA is the only agency established in this country on the national level to coordinate the needs of the Federal Government with those of industry insofar as standardization work is concerned.

The question must be asked: can government derive the full benefits of national voluntary standards *without* belonging to that agency? Can it adequately promote the national standards movement? Can it fulfill its role as protector of the public interest in standards by participating but not really belonging to ASA? Can it be sure, without responsibility for its administrative phases, that the American Standards Association is carrying out its work in the public interest?

I am sure that Tom Hallowell and George Hussey and Cy Ainsworth[2] would answer a firm No to each of those questions. They believe that ASA should be federally incorporated. They believe that a Federal charter is just as important, and would be just as valuable, to government as to ASA, since it would permit government people to participate in standards work as full partners on a level with other organized groups. They feel, moreover, that any government official who really understands the fundamental concepts of ASA—who knows what it was created to do—who realizes that ASA is a semi-public institution rather than a wholly private one—they feel that such an official would be working even harder than ASA people to see that ASA is federally chartered.

"For the good of the country, there is need of thousands of national standards which we do not now have. In the making of those standards, the Federal Government should participate on an administrative as well as a technical level. In order to make that participation possible, there must be a common meeting place, a bridge, between Government and industry. I believe that the American Standards Association is the logical organization within which that meeting should take place."

That is the way I ended the talk I gave in Washington three years ago this month, when I was explaining ASA to Government. I am happy to repeat it and to stand by it now.

[2]H. Thomas Hallowell, Jr, president of ASA; Vice Admiral G. F. Hussey, Jr, USN (Ret), managing director of ASA; Cyril Ainsworth, technical director of ASA.

Standardization and Engineering Planning

The Navy's battleship, USS NEW JERSEY

by **Ellsworth F. Seaman**

THIS discussion has been prepared in order to stimulate engineering thinking and planning as essential elements in the achievement of standardization objectives. The concept of engineering planning as developed herein takes into account the requirements of Public Law 436 where the government and especially the military must take such steps as are necessary to devise a simplified supply system.

The importance of planned standardization effort in various engineering fields cannot be overestimated. The end result of successful accomplishment is the best guarantee of logistical support and mobilization readiness.

STANDARDIZATION AND ENGINEERING PLANNING

Engineering planning for standardization, when properly employed, has its origin at that point when there is an expression of need that standardization work be undertaken. The initial phase of the planning commits no effort to a program but proceeds instead in a probing and exploratory way to define and evaluate all major parts of the problem. The picture that is thus developed indicates priority of the problem parts, potential benefits, most economical methods of approach or, in some cases, may result in nonactivation of a project because of questionable beneficial returns when compared to expended effort. Planning of this type is quite apart from scheduling and progress-following opera-

This article, written by Mr Seaman for the Journal of the American Society of Naval Engineers and published in the February 1957 issue of the Journal, is based on Mr Seaman's experience as head of the Standardization and Conservation Planning Branch of the Navy's Bureau of Ships. He is well known to members of the American Standards Association as alternate member of the Electrical Standards Board and the United States National Committee of the International Electrotechnical Commission. He is chairman of IEC committees on Insulating Materials and on Basic Testing Procedures for Components for Electronic Equipment. Mr Seaman is also one of four United States members of a task group concerned with Pan American standardization.

tions which represent the administrative support effort normally carried out by non-engineering personnel.

A further important concept in discussing standardization planning is to think of it in terms of a kind of catalytic effort that should start a beneficial chain of reaction governed by the terms of reference of the master plan provided by engineering analysis and thinking. Documentation is the ultimate goal of much of the effort and when agreement has been reached the results are published in standards and specifications.

The value of planning is directly related to breadth of engineering viewpoint; hence it is indicated that engineering planning can best serve the purposes of standardization by operating in a centralized staff capacity. At the same time, it must be very directly associated with the realities of application needs which means that the standardization planning engineers at staff level and the standardization engineers in the operating field must depend on each other for cross fertilization of ideas leading to workable long-range plans of action. The standards engineers at project level are the ones who will achieve agreements with their counterparts in order to develop the standards documents. The scope of such documents and the need for them is generally defined as the result of engineering planning.

Areas of standardization effort are, in a great many cases, interpreted as consisting only of items of supply. There are, however, other across-the-board types of interest that require as much or more planning and coordination than would be the case for hardware or consumer items. Examples of this include: drawing room practice, terminology, and environmental test standardization. Absence of adequate planning in these and similar areas can reduce specification usefulness covering many end items and can lead to unjustifiably expensive investments in laboratory facilities. Importance of environmental test work is increasing at a rapid rate on a national scale and is closely related to current international programs.

Planning actually begins when the problem is viewed in perspective and this picture develops out of a definition of all of the pertinent considerations. The standardization of electric motors may be used as an example to illustrate many of the basic factors that are always considered during the initial planning phase. The avenues of approach that are explored for this specific problem should be considered as generally applicable to a variety of end items involving mass production and mass usage. Products such as fasteners, valves, bearings, and gasket or packing materials fall into this category. An analysis of the specific motor problem includes the following:

Initial Planning Conference

The initial standardization planning conference should form the basis for definition of all basic considerations. All personnel having responsibility and interest in this area of standardization should be represented in this conference.

Supply Classification

Each motor type should be identified with a supply classification number. This provides a mechanism for later simplification action. The Federal Supply Classification for electric motors is 6105. It includes, in addition to motors, such spare parts as armatures and field windings. These spares are proprietary to specific motor designs and are automatically reduced or eliminated during the simplification of the supply system for motors.

Background

A certain amount of background, forming the basis for existing standards and specifications is essential to an understanding of the current standardization problem. As a part of this background, it is useful to point out those areas which have received major attention in the past because of their importance in the work of the application engineers. In the case of motors, a statement concerning the relative importance of fractional vs integral horsepowers is of value.

An understanding of the basis of rating for motors is important since this determines motor size and simplification trends. Generally speaking, motor ratings in industry are based on insulation temperature limits depending on the type of insulation used. Ambient temperatures used with permissible temperature rise will control selection of frame sizes.

Interchangeability

Interchangeability is a primary objective of standardization. In motors it means establishment of maximum permissible overall dimensions and mounting dimensions; definition of functional requirements such as horsepower, speed, and voltage; and a statement of performance quality as measured by standard test methods.

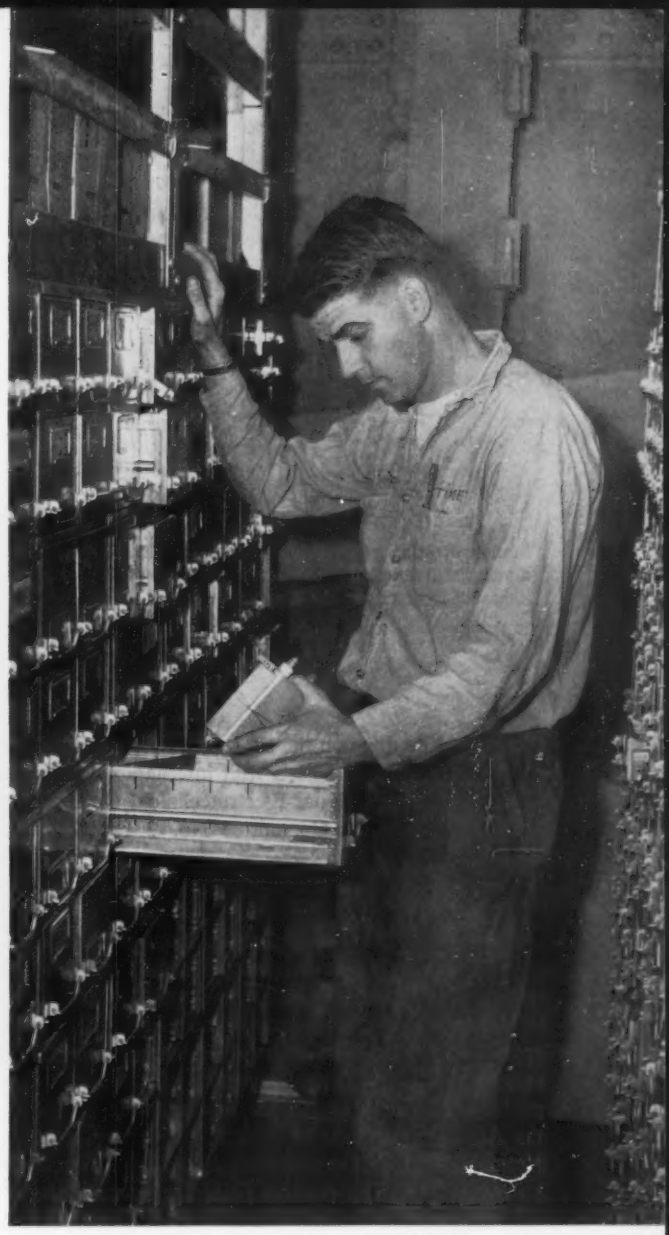
Documentation

If there is any question about where to use design type specifications or performance specifications, the

◀ **Navy's planning** *includes precision loading. Waiting at Bayonne Supply Depot for cargo ship, packages are in order of loading, marked for location aboard, so supplies can be issued as ship leaves dock.*

▼ **Ship's crew and Depot personnel** *break open cartons in area where material is to be stowed aboard ship. Drawers and bins for individual items are near table.*

Crewmember of USS Mercury, *cargo ship, puts electronics item into drawer that bears its serial number. Ship's supply officer has list of items, their exact location, and number of each on hand.* ▶



Official U.S. Navy Photos

decision should be reached at this point. As a general rule, a consumer needs performance specifications.

A general scheme should also be developed as to breakdown in coverage for each document needed to make up total coverage for the field. It might be decided that a total of four documents would be needed, namely: integral horsepower dc, integral horsepower ac, fractional horsepower dc, and fractional horsepower ac.

Obsolescence

Adequate planning should lead either to the elimination, or reduction to a minimum, of item obsolescence which may result from standardization effort that results in a simplified system of supply. As an example, it might be found possible to eliminate 50 percent of the variations in motor sizes, types, etc. It is essential that conversion from past to new supply practice be controlled by instructions to using activities so as not to freeze existing stocks as non-issuable. Provision must be made for issuance until exhaustion of current stocks.

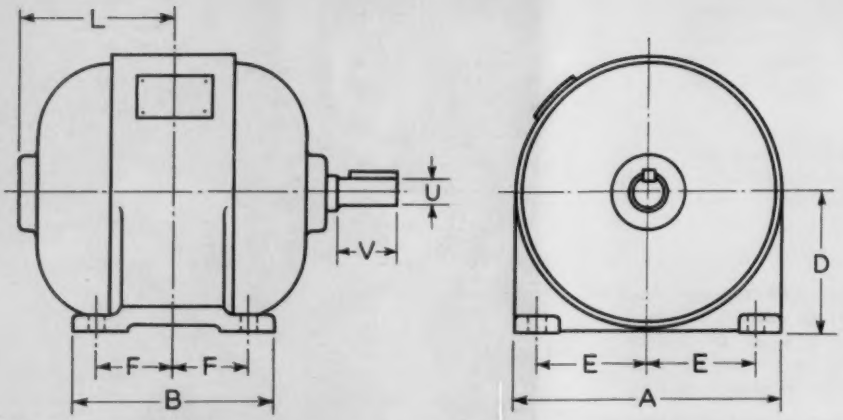
The effect of research and development on simplified supply decisions must also be considered as a possible obsoleting influence. The development of motors using silicone insulation permits higher temperatures and the use, for a given horsepower rating, of a smaller frame size motor than presently in the supply system.

Financial Support

It is essential that a long-range view be taken concerning standardization objectives over a period of years. Since financial support is sometimes essential to the achievement of standardization goals, it is important to project planning into the future to assure adequate appropriations in support of this work.

International Work

It is never too early to evaluate international relationships in standardization work. It is, in fact, much easier to give and take in international bargaining before national interests have been committed to unchangeable producer and consumer standards. The least



Standardization planning to provide for interchangeability of motors must consider standard dimensions, functional characteristics, and quality. Dimensions that must be standard are indicated by letters in the diagram above.

Dimensions

A, B, L (Max.)
D, 2E, 2F, U (tol.)
V (Min.)

Functional Characteristics

Horsepower; speed; torque; voltage; ambient temperature; temperature rise; starting current; enclosure type; dc or phase frequency; altitude

Quality Considerations

Adequate materials
Audio and radio noise
Test methods

that should be done on the subject of motors should be a continuing type of liaison with international industry through the International Electrotechnical Commission and their Technical Committee No. 2 for Rotating Machinery.

Societies and Associations

Appropriate societies and associations represent important liaison points where standardization work is sponsored and carried out. It is important, therefore, to utilize the results of such group effort wherever it applies to the problem at hand or where such bodies may contribute to the achievement of standardization goals. In the field of electric motors, such bodies as the American Institute of Electrical Engineers and the National Electric Manufacturers Association should not be overlooked. The over-all point for liaison between industry and the Government is found in the American Standards Association where certain projects are currently active which will have an influence on motor standardization. This includes terminology in the new dictionary of electrical terms which is now a proposed publication. Through a revision of AIEE Standard No. 1, there are important test methods and temperature classifications which will be a U.S. national guide as well as being compatible with proposed international standards.

Terminology

It is necessary to establish liaison with those activities engaged in terminology work. This involves the definitions for motor enclosures where the subject is significant to other fields as well. Simplification in enclosure terminology can directly effect reductions in motor types.

Preferred Number Application

Special emphasis should be directed toward the selection of a full coverage of sizes with the maximum economy in selected standard units. The most important single guideline in this connection is the use of preferred numbers.*

Long-Range Plan

Consideration should be given to the approach which would be taken in the preparation of a long-range plan for simplification and other types of action. The aspect of simplification, since it is one of the major standardization efforts, would require a rather thorough analysis of the whole range of supply for motors so that on a theoretical basis, an adequate number of standard items might be designated and from this a super-selection of preferred items might be specified. This long-range plan would represent the ideal situation if all manufactured frame sizes were consistent and if the user could proceed without inhibitions concerning past practices on best use of different items.

Short-Range Plans

The short-range engineering plan would select from the long-range plan those areas having the highest priority and representative of the kind of effort where the greatest savings might be immediately realized. It must also take into consideration those points at which it is feasible to take more immediate action than would be the case with some of the evolutionary longer time portions of the long-range plan. The short-range plan would represent the smaller and most manageable portions of the total work.

Basic Test Methods

Measurement of standard performance by standard test methods is an important part of any standardiza-

*American Standard Preferred Numbers Z17.1 or Bureau of Ships Standardization Manual, Chapter 2.

tion program. It is therefore important to relate this work to existing standards in the broad field of environmental tests where the best guidelines are available.

Associated Components

In the field of motor standardization, it must be recognized that there are individual components which go into the motor and which fall within other fields of standardization. This includes such items as bearings, magnet wire, lubricants, and fasteners. Liaison must be maintained with these associated fields to insure full use of standardization efforts having "across the board" significance.

Data Tabulation and Analyses

In attempting to analyze the importance of the similarities and differences when many items of supply exist, it is essential that the most economical approach to this be used. Manual listing techniques can be time-consuming and wasteful. In the case of electric motors, the amount of work and detail involved would recommend the EAM (Electric Accounting Machine) or punch card approach.

Reporting

Continued work on any major standardization project depends on making available to management such information as will tie together the use of appropriated funds, the cost of the standardization work and the monetary as well as other economies resulting from the completion of this work or some phase of it. Reporting is therefore to be considered an essential part of the standardization program.

Engineering planning enters into all phases of a standardization program where it is important to a full understanding of the trends which are developing within the program. There are several specific points which are most important to engineering thinking and its potential influence on the direction of the work. These points fall under Parts I, III, IV, and VII in the following outline.

I. General Planning Conference

This is the initial conference which would normally take place before any standardization work is done. Its purpose is to define all the basic considerations that pertain to the problem and to explore all avenues of approach so that the work can most effectively be carried out. An operation of this kind is fully discussed above.

II. Collection of all Pertinent Data

This operation would be performed by engineering aides or administrative personnel. It includes the collection of use data, supply information, existing specification documents, and such other material useful to the program.

III. Data Analyses

Data analyses include the tabulation of data and its arrangement in such a fashion that all of the significant information may be made available with a minimum of work. The selection of characteristics under which the information is classified is an important phase of the planning work. Similarities and differences are necessary factors which should show up readily as a result of the way in which the data are listed.

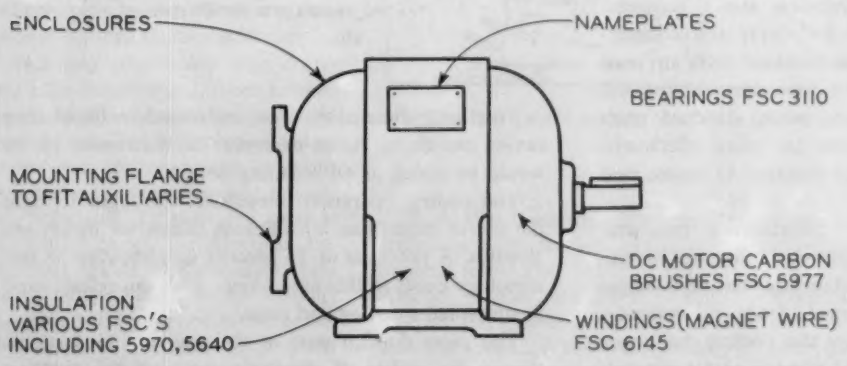
The analysis of each part of the data is a function of the technical project engineer charged with the responsibility for this part of the program.

IV. Engineering Planning Evaluation

The analyses have the objective of determining how a simplified supply system may be best developed. This is a joint effort between the standardization engineers in the planning and operating portions of the activity. In addition to simplification, it may be indicated that testing programs should be set up or that unsatisfied needs exist and should be covered.

V. Scheduling

The scheduling of work as to priority of the different phases and areas in which projects will be undertaken, is a function of engineering planning decisions that have



In motor standardization *other major components integral in motor construction must be considered, as indicated here. "FSC" refers to "Federal Supply Classification" which identifies different supply items for Government use. Other general standards that are applicable include definitions of electrical terms, various FSC's for fasteners, and standards for technical manuals.*

been reached up to this point. The scheduling and project progress reporting work is carried out by administrative personnel. The assignment of projects is the result of mutual agreement between interested participants in the total standardization program.

VI. Standardization Decisions and Documentation

Standardization decisions are made by personnel having responsibility for applications but on the basis of thorough consideration of those recommendations that develop out of engineering planning. These decisions control the type and kind of documentation that must be prepared. They include the elimination of needless variety and the adoption of a simplified supply system framework.

VII. Final Evaluation

This includes a complete report of the standardization cycle concerning use of money, cost of doing work, and the savings that result from standardization accomplishment. This is an important aspect of engineering planning and provides well-grounded justification for appropriations for future work. Standardization planning depends on standards engineers in the application field to provide accurate information as to actual accomplishments which have been achieved.

ACKNOWLEDGEMENT

This author wishes to express his appreciation of the useful suggestions which were made by those who were associated with the development of a coding system to serve the purposes of standardization. The individuals most concerned with this effort were Messrs. James R. Curry and Cecil C. Grover from industry and Messrs. John E. Burke, F. E. Anderson and W. J. Glod of the Bureau of Ships, Department of the Navy.

VIII. Maintenance of Standards

A continual amendment or revision program for specifications and standards must be maintained. This will keep the standardization agreements current and insure the highest validity and use for each published agreement. This is a continuing task of the standards engineer.

Maintenance of standards requires also a continual educational program between producers and consumers so that commonly available standard parts are used wherever practical. If this is not done, special parts will be found in many equipments when standard parts would have served the purpose far more effectively. A monitoring program may be required to insure best use of available standards.

Engineering planning for standardization must necessarily assume the responsibility of finding and recommending mechanisms to facilitate the accomplishment of objectives. These actions range from recommendations for new or revised policies that control the course of standardization, to improved techniques for handling complex problems. An example of this latter aspect consists of the analysis of thousands of records of supply of electric motors. This problem involves description and listing of essential characteristics of each motor for the purpose of simplification studies.

AN EAM (ELECTRIC ACCOUNTING MACHINE) TECHNIQUE

The punched card automatic machine approach was indicated as a time saving device. A pattern study was therefore initiated with the purpose of fully exploring the potential benefits of this technique for more extensive application. Guidance rules for the study were devised along the following lines:

a. Only those characteristics that could be used directly or indirectly for simplification or other standardization actions were selected for coding.

b. A significant coding system would be used insofar as this was found practical.

c. The maximum economy in coding digits was important while at the same time insuring more than adequate capacity within the code.

d. A special symbol would be used for the coding space where the information was not available, not applicable or beyond the capacity of the code.

e. An accuracy of at least 95 percent would be required in the coding operation.

f. A miniature film of the complete item record would be mounted on each punched card so as to provide ready access to uncoded data, if needed.

Some interesting coding techniques were developed during the motor coding operations. They are repeated here because of their provision for adequate coding capacity with greatest economy in digits. They are:

Horsepower

A = Everything below 1/100
B1 to B9 = 0.01 to 0.09 hp
C1 to C9 = 0.1 to 0.9 hp
D1 to D9 = 1 to 9 hp
10 to 99 = 10 to 99 hp
F1 to F9 = 100 to 900 hp
T = Torque

Speed

B1 = Below 100 rpm
01 = 100 rpm to 200 rpm
02 = 200 rpm to 300 rpm
etc.

Dimensions

Fractional dimensions were expressed in 64ths thus saving two digits. As an example, the dimension 15/16 would be coded as 60 meaning 60/64.

The coding operation immediately brought to light the use of more than 80 different names for motor enclosures. A potential of 75 percent simplification in terminology exists in this area alone. This can reflect itself in simplified stocking and issue.

The most difficult part of the punched card operation is the coding of characteristics and this problem

can be greatly reduced if engineering assistance is available for the operation.

The motor punch card task was a relatively small one consisting of about 5000 cards. It is conservatively estimated that about two man years will have been saved by the machine method compared to the manual method of individual listing and arranging information in proper sequence. This takes into account the coding time required for the punch card operation.

GENERAL CONCLUSIONS

A generalized summarization of the foregoing will, it is believed, support the following conclusions:

a. The punched card technique for analyzing similarities and differences can render an indispensable service by saving manpower in those instances where a great variety and number of items exist. This applies to electrical, mechanical, electronic, and other fields of engineering.

b. Good planning for the use of punched card techniques can establish an invaluable and automatic liaison between standardization and cataloging effort so that each may benefit.

c. A comprehensive standardization program warrants, as a first step, an examination of the major problem areas. This is best achieved by developing a "bird's eye view" kind of picture such as results from a probing that brings to light all parts of the total problem. In other words, a planning engineer study is required. This pinpoints areas and degree of interest; it indicates directions for simplification or other standardizing action and it supports a logical scheduling of work along with appropriate user areas where assignments for individual tasks or projects should be undertaken.

"And because we are credibly given to understand that the often and continual changing of fashion of armes and armours . . . do put many of our subjects to a great and unnecessary charge . . . we do hereby . . . command that there shall be but one uniform fashion of armours of the same common and trained bands throughout the said Kingdome of England . . ."

This extract from a commission issued by Charles I in 1631 is one of the earliest examples of military standards in Western civilization.

In the Middle Ages soldiers had no "uniform" dress. So as not to be mistaken for a foe and be killed by a friend, a soldier would eagerly rally around the company "standard," which thereby acquired its almost sacred character.

By the early 18th century, practically every professional army was organized and dressed according to standards. In the 19th century the standardization of weapons and equipment made rapid progress. In fact, military requirements were often the catalyst for civilian standardization.

This was particularly true during and after World War I, when military standards alone were no longer enough to win a war. The technological nature of the war created a need for many new national engineering and production standards. To meet this need in the United States, the American Engineering Standards Committee (now the American Standards Association) was founded. Its service to the peacetime economy now extends to nearly every field of industrial activity.

"Thy last year's model, Sire, is a source of merriment." Anonymous

World War II carried military standardization a step farther—to the international level. The "ABC" nations—America, Britain, and Canada—came together and agreed on many items of standard ordnance and other military equipment. When NATO began to function, one of its most important activities became standardization.

The many international military standards that are now being developed will also serve many civilian purposes and stimulate civilian international standards activities.

What is the Future for American Standards?

A report on the first meeting of ASA's member organizations and governing bodies—Standards Boards, April 24; Member Bodies and Board members April 25; Standards Council April 26.

FOR the first time since organization of the American Standards Association, all the groups that have responsibility for its operations have met together to exchange views on ASA's goals, achievements, and methods. The three-day meeting of ASA's Member-Bodies, Board of Directors, Standards Council, and Standards Boards, took place April 24, 25, and 26 at the Hotel Biltmore, New York.

"Who Are We?" the welcoming address to Member-Bodies and Associate Members by H. Thomas Hallowell, ASA's president, struck the keynote of the meeting (see excerpts on page 174).

During the three-day meeting this question was reviewed from many different angles, and an attempt was made to project the answers into possible developments of the future.

The first joint meeting of all ASA's Standards Boards, the groups that supervise development of American Standards in their individual fields, was held April 24. The Member-Bodies and Board of Directors met the second day, and the Standards Council held its business meeting on the third day. Since the purpose was to exchange views and to make it possible for all to become better acquainted with what others are doing under ASA's procedures, all were invited to attend each of the sessions, and many did.

Members of the Standards Boards exchanged ideas and views on the working level and considered how their work is carried on under ASA procedures. Arthur S. Johnson, chairman of ASA's Standards Council, welcomed the Board members. Standards Boards are charged with supervision of work in progress, initiation of projects, approval of committee personnel, and recommendations on approval of standards. All report to the Standards Council. In addition, the Council has set up a Board of Review to act for it as a means of speeding approval of standards. All questionable or controversial cases are referred to the Council itself for action.

The duties and responsibilities of the Standards Boards and of the Board of Review are increasing, Mr Johnson said. The Standards Council, therefore, has become the policy-making body and the final arbitrator.

"It can fairly be said that the Standards Boards are the key to ASA operations," he declared. "This means that the Standards Boards must become more and more experienced and diligent in their work and must be ready to face the ever-increasing complexity of our national standards program."

The relationship of the Boards to each other is important, he pointed out, because "there is simply too much to do along too many lines to do a job more than once." For example, he commented, "if the nuclear people need certain specialized standards for screw threads, the Nuclear Standards Board should not attempt to set up a committee under its own jurisdiction, but should ask the Mechanical Standards Board to see that the work is done through an existing sectional committee, if possible. If it is not possible to do the work needed in this way, the NSB should then take the necessary steps to organize a suitable committee for the work."

Vice Admiral G. F. Hussey, Jr, USN (Ret.), Managing Director of the American Standards Association, introduced ASA's staff, whose work serves the Standards Boards. It is the duty of the ASA staff, he explained, to check on the acceptance of a standard. When a general conference is called for consideration of a proposed new project, it is their responsibility to see that invitations are sent out as broadly as possible. In working with committees and Standards Boards, the ASA staff bends over backward to see that it does not influence the decision, he explained. The staff tries to get the group concerned to make a decision, but under no circumstances does it influence what that decision shall be.

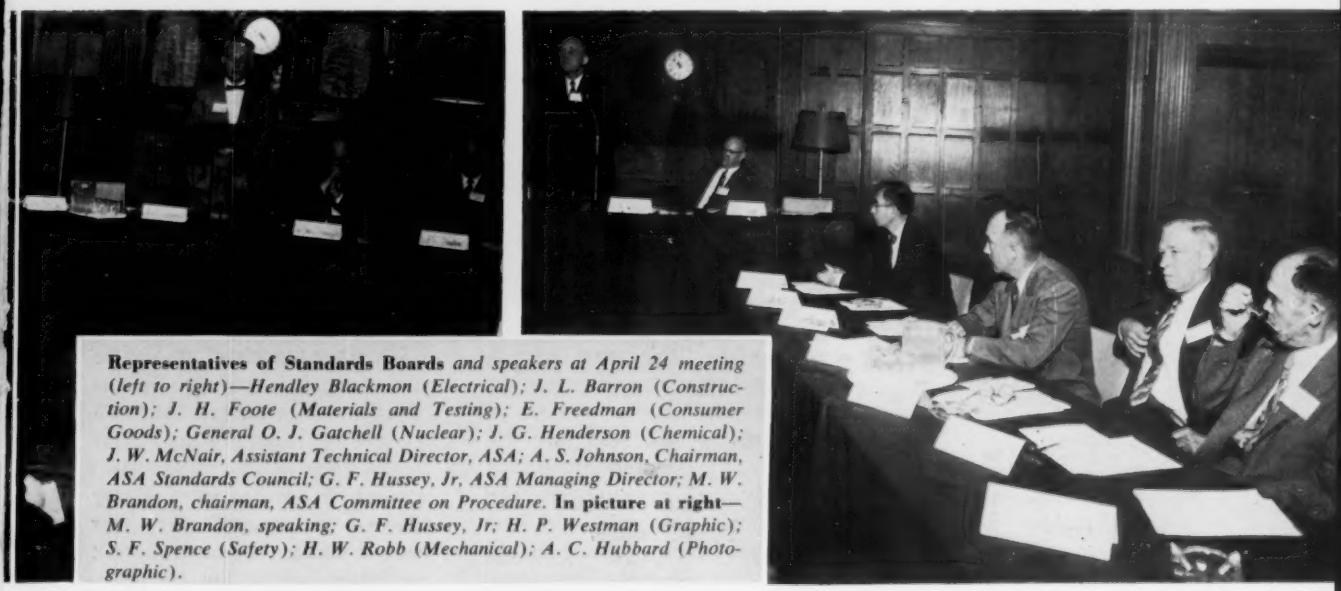
Merwin Brandon, Underwriters' Laboratories, chairman of the Committee on Procedure, declared that "If we can get together everyone concerned, and they agree, the result will be a real 'American Standard'." The Committee on Procedure is the watchdog committee on interpretation and application of ASA's constitutional procedures.

To help bring all qualified standards in the USA under the procedures of the American Standards Association, the Existing Standard Method has been developed, Mr Brandon explained. "Any standard can be submitted to ASA and can be accepted as American Standard if all interests have accepted it."

In some cases, however, an organization may accept representation on a committee in order to obstruct work on a standard, it was explained. For this reason, Standards Council rules require that every negative vote be explained. And Standards Council has the responsibility for deciding whether the vote on a standard shows a "consensus" in its favor. This means that Standards Council weighs the votes. If a group that has a vital interest in the standard votes "no," Standards Council decides there is no consensus. If, however, as has happened in the past, one group votes "no" just because it does not want a standard at all, Standards Council has been known to rule that it is not right for that one organization to block all standards work on the subject under consideration, and will approve the standard despite the negative vote.

One of the functions of the Standards Boards is to "consider the desirability of standardization of subjects within their particular fields and initiate appropriate projects when deemed desirable," J. W. McNair, Assistant Technical Director of ASA, pointed out. This calls for planning on the part of the Boards, he declared, to determine what new work is desirable. The

(Continued on page 175)



Representatives of Standards Boards *and speakers at April 24 meeting (left to right)—Hendley Blackmon (Electrical); J. L. Barron (Construction); J. H. Foote (Materials and Testing); E. Freedman (Consumer Goods); General O. J. Gatchell (Nuclear); J. G. Henderson (Chemical); J. W. McNair, Assistant Technical Director, ASA; A. S. Johnson, Chairman, ASA Standards Council; G. F. Hussey, Jr, ASA Managing Director; M. W. Brandon, chairman, ASA Committee on Procedure.* **In picture at right—** *M. W. Brandon, speaking; G. F. Hussey, Jr; H. P. Westman (Graphic); S. F. Spence (Safety); H. W. Robb (Mechanical); A. C. Hubbard (Photographic).*

WHO ARE WE?

Excerpts from opening address by H. Thomas Hallowell, president of the American Standards Association, at the meeting of ASA Member-Bodies and Associate Members, April 25, 1957.

We are no orphans. We have a mighty fine set of parents who are still very much alive and going stronger than ever. They are the Civil Engineers, the Electrical Engineers, the Mechanical Engineers, the Mining and Metallurgical Engineers, and the Society for Testing Materials.

These five great engineering societies created our forerunner, the American Engineering Standards Committee, at the end of World War I for the very same reason that we are still in existence today — they needed an impartial organization under whose auspices truly national standards could be developed.

Three departments of the federal government — Commerce, War, and Navy — joined them as founding members. You might call them our godparents.

Originally, we were limited to engineering standards. It soon became obvious, however, that engineers do not exist in splendid isolation in our society. Their work affects every single individual and group of the nation. Thus, for truly national standards, the cooperation of many other professions and trades was needed.

A reorganization in 1928 and subsequent changes in our constitution and by-laws made it possible for ASA to broaden its scope. Today we can make our facilities available for practically every type of standards project that has truly national or international significance and application.

From the original eight founding members, the number of our member-bodies has grown to 66. Our associate members number 51. In addition, we have about 2300 company members, either direct or through their trade groups.

You have a great stake in ASA. Our voluntary national standards movement is an essential part of our free enterprise system. If ASA did not exist, the work of developing national standards would be immensely complicated. In fact, a new ASA would have to be created.

What we have done so far is just the beginning of national standardization in the United States. At our present pace of technological progress, we have hardly scratched the surface. The more complicated our technology becomes, the greater will be the number of standards needed. And they will be needed faster than ever before.

Individual associations and groups can only gain, and have nothing to lose, by working through ASA. ASA approval of an organization standard advertises the organization's work. It tells other people that there is no need to work in the same field.

On standards projects of national scope individual interests are now more willing to work under ASA auspices than through organizations that are identified with a particular trade.

Many industrial groups now come direct to ASA. Standard-making thus becomes a one-step job. Everybody gets into the act the first time around. And this makes sense whenever a standard project promises to have national scope and application. It eliminates a second step of getting an organization standard approved as American Standard. Besides, it can save you a considerable amount of work and expense.

Of course, all standards that have only a limited scope within a single group area are strictly the business of the particular profession or trade. Such standards cannot be approved as American Standards.

On the other hand, all international standards can be developed only through ASA and its affiliated organizations for international standards work. ASA is the only channel for international representation of American standards interests.

Savings on $20 Billion

International standards are becoming increasingly important to our national economy and defense. With almost $20 billion of export and defense shipments each year, we can achieve tremendous savings by helping to create more international standards.

Wherever "specials" have to be made for export, costs go up terrifically. One of the greatest headaches of American exporters is the great variety of foreign standards which they have to meet. Heavy expenses are incurred every year because foreign standards are not accurately met or are misunderstood. Claims have to be paid; equipment shipped has to be altered at destination; or goods are returned to the shipper. Much export business is lost completely because it is uneconomical for an American manufacturer to change his regular production run to conform to a foreign standard.

It is no coincidence that the American industries doing the largest export business are the ones that have helped develop the most advanced international standards.

They are the electrical industry, the motion picture industry, the photographic industry, and the manufacturers of oil drilling and production equipment.

ASA is the only organization through which this work can be done. But international standards work is expensive. We need far greater support in personal participation and in funds to carry out all the work that is vital to our own security.

Finally, we should like you to fully understand the significance of ASA's relation with the federal government.

Things have changed considerably in recent years. We no longer have to sell our voluntary standards movement to the government. On the contrary, government is now looking to us to take the lead in the development of national standards for its own use. We have a great responsibility to live up to these expectations and to perform.

There is no conflict between the work that individual organizations can do and the role of ASA. The task is so big that there is room for everybody. We must all act together with the ultimate aim of rendering all the services that Government needs in the way of standards and specifications.

ASA is your offspring. You are our parents, owners, and stockholders. ASA works for your benefit and for the welfare of the entire national economy. ASA exists because it can do certain things better than individual groups which are identified with only one field of our national life.

Because of its impartial nature, ASA is the only agency that can develop truly national standards and represent American interests on international standards work.

As our founders and parents, you are responsible for the scope of our work and for the initiative and energy with which it is carried out.

(Continued from page 173)

work would only be initiated, however, after the usual careful consultation and investigation under the auspices of the Board. The Boards then have the responsibility to follow up, expedite, and correlate work in progress, and to harmonize conflicts.

The Standards Boards also have the responsibility for seeing that sponsors and sectional committees review the standards for which they are responsible and either reaffirm them if they are satisfactory or see that a revision is undertaken if changes in industry or in technical developments make it necessary to revise the standard. This review must be undertaken at least once in every five years.

The first of the Standards Boards to be organized—the Safety Code Correlating Committee, as it was first known—came into being when it became evident that a body was needed to plan and supervise a broad program of standardization in the safety field.

The Nuclear Standards Board, last of the Boards to be organized, resulted from the work of a Planning Committee which studied the developments in nuclear energy, recommended setting up the Board, and suggested certain areas in which standardization should be given early attention.

Use of nuclear energy is fast settling down out of the stratosphere into the realm of "pots and pans," declared Morehead Patterson, chairman of the Nuclear Standards Board, in his discussion of the relationship of the NSB to the other Standards Boards. In Germany, for example, he said, the atomic physicists have done their job for the next ten years. It is up to the engineers to catch up.

The Nuclear Standards Board is assigned primary jurisdiction over such standards work within its field as does not fall in the field of an existing standards board, and only secondary jurisdiction over those projects that are already assigned to a present standards board, Mr Patterson explained.

"The work before us falls into two major divisions," he said. "First, the revision or modification of existing standards to make them conform to nuclear conditions. Secondly, the creation of new standards where none exist and are necessary.

"In the Nuclear Instrument Field, our N3 Project, for example, a great deal of work is already being done by the Radio-Electronic-Television Manufacturers Association through its Committee on Nuclear Instrumentation. Every effort should be made to utilize their capabilities insofar as possible.

"In the field of Electrical Equipment, N4, many of the present American Standards have application. Products and equipment which are installed where operating personnel are permitted would utilize present standards and, if the exposure to radiation hazards is moderate, possibly only minor modification or protective measures would be sufficient. On the other hand, if devices, products, or equipments are to be installed where radiation exposure is severe, then new standards might be in order.

"In the electrical field there are active sectional committees on Wire, C7, C8, C9; Switchgear, C37; Electrical measuring instruments, C39; Rotating electrical machinery, C50; Electrical insulation materials, C59; Conduits, C80.

"These existing ASA sectional committees could very appropriately take up modifications necessary to meet the unusual conditions of radiation exposure."

These Boards Supervise Standards Under ASA Procedures

Acoustical Standards Board
Building and Construction Standards Board
Chemical Industry Advisory Board
Consumer Goods Standards Board
Electrical Standards Board
Graphic Standards Board
Highway Traffic Standards Board
Materials and Testing Standards Board
Mechanical Standards Board
Mining Standards Board
Miscellaneous Standards Board
Nuclear Standards Board
Photographic Standards Board
Safety Standards Board

The Eighth National Conference on Standards, *to be held at San Francisco, November 13-15, was featured in an exhibit at ASA's membership meeting.*

WHAT SOME OF THE STANDARDS BOARDS ARE DOING

As reported to ASA's Member-Bodies, April 25, 1957

Consumer Goods Standards Board

Dr Ephraim Freedman, Chairman (*Director, R. H. Macy's Bureau of Standards, New York*)

The products currently engaging most of our time and efforts are those revolving around textiles.

The importance of these activities is, perhaps, best portrayed by the following data:

The textile apparel industry alone is reported to be the third largest industry in the United States in terms of manufacturers' sales* with a dollar volume of $23,343,000.

In numbers of employees it ranks first, employing 2,219,000 compared with 1,709,000 for transportation equipment—1,650,000 for food and kindred products.

Textiles are utilized directly and on a continuing basis by 100 percent of the nation's population, combining with air, water, and food, to form the four basic material necessities without which we could not exist.

The battle of the textile fibers, initiated subsequent to World War I by the introduction of the synthetic fiber, rayon, and its encroachment on markets heretofore secured by the natural fibers, has blossomed forth in a free-for-all by giants in the chemical industry who are flooding the market with a multitudinous array of man-made fibers. The end-use properties of these fibers are, in many instances, an enigma to the consuming public, and, I might add, to the fabric and product producers of the textile industry.

*source—U.S. Dept of Commerce 1952-54

American Standard L22, Minimum Requirements for Rayon and Acetate Fabrics. When, on June 11, 1951, the Standards Council approved the recommendation of the Consumer Goods Committee that L22, Minimum Requirements for Rayon and Acetate Fabrics, be approved as American Standard, the Council could not have realized the tremendous impact and importance of this decision.

While the textile industry as a whole chose to ignore the existence of L22, it has finally come to the realization that it must have end-use standards, if for no other reason than to cope successfully with the hundreds of synthetic fibers that have invaded the market.

Initiated in 1948 by the National Retail Dry Goods Association and the American Viscose Corporation, L22 contains 51 end-use standards covering women's and girls', men's and boys', and home furnishings, rayon, acetate, and mixed fabrics.

Although L22 got off to a very slow start, it has gradually received recognition and is proving the worth of its existence.

In addition to the activities of the American Viscose Corporation, it is notable that a large textile manufacturer and finisher, Reeves Bros, has also instituted a program which affords its customers the opportunity to obtain rayons and acetate fabrics which meet or exceed the test requirements of ASA L22.

Macy's Bureau of Standards is constantly comparing its test results with the requirements set forth in ASA L22. The Bureau uses this standard as a means of differentiating merchandise of acceptable and non-acceptable quality.

Of greatest importance, however, is this — the awareness of the need for end-use standards in the textile field has caused the Textile Distributors Institute to submit its proposed specifications for consideration by Sectional Committee L22.

This action on the part of the Textile Distributors Institute comes at an opportune time, for the Consumer Goods Standards Board has already established Committee L25.

This committee has been charged with the task of developing standards, methods of test, and performance requirements for fabrics in terms of their end-use regardless of their fiber content, for men's wear, women's wear, and home furnishings; and with the development of suitable procedures for permitting the use of any standards developed by this project by means of labels, tags, or other effective methods.

In addition to textiles, there is room for the expansion of consumer goods standards to many other lines of merchandise. For example, there is currently great need for an American Standard for testing domestic air-conditioners and for manufacturers of such units to be prevailed upon to agree upon such standard test procedures, to adhere strictly to them, and to rate and label their industry products accordingly.

There is also need for the creation of American Standards for high fidelity receiving, recording, and transcription devices.

Materials and Testing Standards Board

J. H. Foote, Chairman
President, Commonwealth Associates, Inc, Jackson, Michigan.

The Materials and Testing Standards Board was organized in 1954 to facilitate the handling of standards of the American Society for Testing Materials in ASA procedure. The American Society for Testing Materials occupies a unique position of pre-eminence in the field of materials standardization. Through its nearly 80 technical committees it has developed over 2000 nationally recognized standards for the specification and testing of materials. ASTM is one of the founders of ASA and as one of the ASA member-bodies has encouraged and supported the development of American Standards.

The organization of ASTM technical committees and the regulations governing their operation in developing standards is calculated to insure the thorough consideration of diverse viewpoints, such as may be entertained by producers, consumers, and general interests. Adverse viewpoints and any negative votes are given most careful attention in arriving at a conclusion. ASTM standards, therefore, are prepared in a manner closely akin to the procedures of the American Standards Association. The most significant difference between these procedures is that in ASTM committees the voting is generally by individuals while in ASA the voting is generally by the organizations represented.

ASTM had consistently presented its standards for approval as American Standard, generally under the Existing Standards Method, to the extent that over 600 ASTM standards are now so designated. This number represents a significant portion (35 percent) of the present total of 1680 American Standards. However, it also represents but a portion of the total number of ASTM standards. To encourage and facilitate the submittal of additional ASTM standards, discussions were held starting in 1952 looking toward the development of a facility for more expeditious submittal and approval of ASTM standards. The importance to the defense effort was at that time emphasized in addition to the value of the general industrial life of the country. Presentation of a united front to government groups actively engaged in the development of military and federal specifications was also a benefit to be expected from an increased rate of submittal and approval of ASTM standards as American Standards.

The discussions culminated in March 1954 in the recommendation by the ASA Committee on Procedure that a new Standards Board be created to deal exclusively with ASTM standards. The committee believed that the close parallel existing between the operations and procedures of ASTM and of ASA, and the experience developed through extensive use of ASA procedure fully justified an interlocking committee form of operation. By letter ballot in March 1954 the Standards Council agreed with the COP's recommendation. Thus was born the Materials and Testing Standards Board.

The MTSB held its organization meeting in May 1954 and during its brief three-year history has considered 39 letter ballots. By this means it has approved 180 new and revised ASTM standards, has withdrawn 10 obsolete standards and has acted on 9 questions dealing with ISO matters.

Construction Standards Board

J. Lloyd Barron, Chairman
Sanitary Engineer, National Biscuit Co, New York

Our work is in three principal areas.

First, code standards, such as the Plumbing Code, the Minimum Design Loads for Buildings, the Code for Reinforced Concrete, etc.

Then, we have standards dealing with materials: specifications of materials, and methods of testing those materials. Many of these standards have been developed by ASTM and submitted for approval under the Existing Standards Method. They are of interest to us because they treat such subjects as cement, brick, concrete block, clay pipe, etc, and provide substantial coverage of construction materials, thus making a valuable addition to the list of American Standards.

Third, we are dealing with a relatively new type of construction standard — the installation or application standard. Numerous problems, including those of labor jurisdiction and those of misuse and failure of materials, have been reduced or eliminated by such standards as

A97 on Gypsum Wallboard. We have tried to meet the growing demand for such standards by authorizing a series of conferences on subjects recommended to us; out of these conferences have thus far come one project on installation of thermal insulating materials, and other projects are under consideration. A project on the installation of ceramic tile had previously been approved and is now well under way.

Building codes are intended primarily for administrative use through legal adoption for the public safety. Since the code requirements necessarily have direct effect upon the materials of construction, the competitive struggle by the materials interests for commercial advantage through such a code is most intense. Even though experience has shown that acceptable standards can result from patience, perseverance, and compromise, there is a tendency to become discouraged and to resign the work. Some code bodies traditionally handle this problem by the open hearing and executive session procedure wherein all interests are permitted to state their cases in a public hearing but are given no voice in the actual writing of the final requirements. This procedure is obviously contrary to ASA principles. A9 (Building Exits Code) could be cited here as a further case in point. Our only recourse, therefore, is careful organization of the projects and patient encouragement of the work, always with the aim of completing those standards for which there is need and which will serve the public welfare. At the same time, we are doing what we can to support code standardization outside of ASA procedures. In a rather unusual arrangement, we are maintaining close contact with the model code work of the Joint Committee on Building Codes which meets three times yearly and is making significant progress.

We are optimistic about the installation standards and can report favorably on one project of broad significance and import — A62 on Modular Coordination. This is now being rapidly reorganized and reactivated. We have high hopes that related modular standards projects will get under way in the near future. We are also welcoming a continuing and growing stream of standards from ASTM. Some of these should perhaps be referred to the Materials and Testing Standards Board rather than to the CSB, but they are considered essential to the coverage of the construction field by the American Standards list. Standards from other sources would also be most welcome, as would suggestions for additional specific projects.

ASA'S INTERNATIONAL OPERATIONS

There has been international cooperation from the earliest days of the ASA, said J. W. McNair, assistant technical director of the American Standards Association. Mr McNair's description of "ASA's International Operations" is being published in the July issue of the MAGAZINE OF STANDARDS.

He pointed out that the make-up of ASA sectional committees closely followed the methods then used by the British. Later the experience of Germany and the other national standardizing bodies was freely drawn upon. A conference held in New York in 1926 resulted in organization of the International Federation of National Standardizing Associations (the ISA). The International Organization for Standardization (ISO) was founded in 1946, to take the place of ISA. It now has 38 nations as member-bodies.

The ISO now has 83 technical committees covering a wide variety of subjects. Nearly all fields of science and engineering are covered except for the electrical field which is taken care of by the International Electrotechnical Commission (IEC) which, while autonomous, serves as ISO's electrical division.

On April 1, 1957, 37 ISO Recommendations had been accepted and 117 Draft ISO Recommendations were under consideration.

ASA is actively participating in 41 of the 83 ISO technical committees and has observer status on all others. ASA serves as the Secretariat of the following nine technical committees:

ISO/TC 11	Unification of boiler codes
ISO/TC 26	Copper and copper alloys
ISO/TC 28	Petroleum products
ISO/TC 36	Cinematography
ISO/TC 42	Photography
ISO/TC 61	Plastics
ISO/TC 66	Determination of viscosity
ISO/TC 67	Materials and equipment for the petroleum industry
ISO/TC 85	Nuclear Energy

"All in all, international standardization work is a going and growing concern and we of the ASA staff solicit your assistance in doing a better job in seeing that our country is well represented and that the views of industry are represented in an effective way," Mr McNair commented.

STANDARDS COUNCIL — THE HUB OF THE WHEEL

"Except for its headquarters consisting of offices, desks, files, machinery, and staff, the only visible evidence of the organization known as the ASA is the Member-Bodies operating in a group as the Standards Council," Arthur S. Johnson, chairman of the Council, told ASA's Member-Bodies and Associate Members at their meeting, April 25. "Today the Council, expanded in membership from the original 15 members with 15 representatives to the present 65 Member-Bodies with 84 representatives, remains as the body through which the Member-Bodies collectively operate the na-

Exhibits *showed application of American Standards in industry.*

American Machine & Foundry Company displayed use of American Standards in AMF's engineering standards program. Typical American Standards in the electrical field showed how work of various national groups is coordinated in the 400 American Standards available in this field. The Union Carbide and Carbon Company again showed its model chemical processing unit and analysis of use of standards (see page 361, December, 1956, MAG OF STDS). Here, J. H. Foote, views AMF exhibit, and Philip Chase, chairman, Electrical Standards Board views ESB exhibit.

tional clearinghouse for standards," he said.

Underlying this growth are the following significant developments.

1. The need for a national standardization program is now broadly recognized.
2. There is recognition that the basic principles underlying ASA operations are sound.
3. An increasing number of industrial groups, branches of technology, public service agencies and governmental agencies have come to the conclusion that standardization can provide solutions to problems and that ASA provides an excellent channel for securing the assistance and cooperation of others interested in similar problems.

"To prove this is so, one only has to read the list of standards approved and projects initiated," Mr Johnson pointed out. "Standardization is no longer thought of in terms of screw threads, bolts and nuts, shafting, gears, keyways, etc. Today we talk about anesthesia equipment, syringes and needles, ski lifts, rayon and acetate fabrics, speed index of photographic film, and a host of other matters that a few years ago would not have seemed to have any relationship with standardization."

"It was this great diversity of subject and great growth in membership, plus the need for greater efficiency in operation, that caused Standards Council to assign the detail of procedural matters to Standards Boards operating in specific fields of interest and with a membership of organizations and individuals conversant with the field of interest," Mr Johnson said. "We can be ever thankful that during World War II there existed within the membership of Standards Council men who not only believed in ASA but had a vision of what was to happen in standardization. As busy as they were in helping to carry on the war, they devoted themselves, in the Post War Planning Committee, to the task of studying the shortcomings of ASA and how to overcome them, and particularly the need for new ways of conducting the business of the Council so that it could meet the challenge of the future. We can also be thankful that the Member-Bodies had vision enough to approve the By-Law and Procedural changes necessary for putting the new plans into effect."

One cannot function as chairman of the Standards Council without wondering whether the changing times indicate again a need for looking into the future, Mr Johnson commented. Standards Council seems to be conscious that this is so, he said, and during the past three or four years, it has developed broad policies that will have a far-reaching effect on the future operations of the ASA.

"The widespread acceptance of the essentiality of national standardization, understanding of the principles underlying ASA operations, and agreement on the necessity of an ASA in our free enterprise system, plus the fact that the Council is no longer bogged down in detail, is producing a profound change in attitude," Mr Johnson told the Member-Body representatives.

"The basic question concerning matters coming before Council that representatives and Member-Bodies now ask themselves is not, 'How will this affect me?' but 'How will this affect national standardization and the ASA as the focal point of the national standardization movement?' "What a difference in the two viewpoints! In the first instance it is like saying, 'What is good for me is

good for the nation' and the second is comparable to saying, 'What is good for the nation is good for me.' "

He called attention to the resolution on the scope of ASA developed recently by a committee of the Council and accepted by the Council as a recommendation to the Board of Directors as an excellent example of the new forward-looking attitude of the Member-Bodies and their representatives on the Council. That resolution in effect says that ASA should be so organized that it can handle any subject or project to which national standardization lends itself. It clears away the cobwebs as to possible limitations on activities of the American Standards Association, Mr. Johnson declared.

In making decisions on the important policy matters coming before the Council, the individual members of the Council need the constructive help of the organizations they represent.

"ASA operations are based on principles that can only be effective when there exists thoroughgoing responsibility on the part of the Member-Bodies and their representatives," Mr Johnson said.

"When an organization becomes a Member-Body of ASA it assumes responsibility with the other members for operating ASA so that the objectives spelled out in the Constitution will be obtained. That responsibility cannot be passed on to others while the Member-Body looks out for its own interests. Therefore, being a Member-Body involves acceptance of the duty of supporting ASA in its operations. This requires a close scrutiny of everything that goes on with the views of the Member-Bodies being made known to the headquarters, either directly or through the representation on the Standards Council. If this responsibility is exercised to the fullest, then the future of national standardization under the leadership of ASA is assured."

Questions and Answers— from ASA's Organization Meeting, April 24-26

To what extent do government organizations take part in the activities of ASA sectional committees and do they vote "Yes" and "No"?

Government organizations do participate and they do vote. For a few years some of the Defense Department organizations participated only in a liaison capacity and did not vote, but they are now again taking an active part in sectional committee work.

Some years ago Federal Government departments were Member-Bodies and participated in Standards Council activities but this is no longer the case.

When a trade association submits a standard to ASA for approval is it processed through a sectional committee?

If the scope of a sectional committee covers the subject of the standard, the chairman of the committee has the right to review the standard to determine whether there is a conflict. If there is no conflict, the committee has no further responsibility. If there is, the Standards Board which has jurisdiction has the responsibility to resolve the conflict. An effort is made to limit the scope of sectional committees so none will take in too broad a field. If the conflict cannot be resolved by the Standards Board, it can be appealed to the Standards Council.

In ASA procedure does every sectional committee always report to a standards board?

Yes, every new project is assigned to a standards board. If it is a project that does not fall into one of the special fields, such as Electrical, Safety, Mechanical, it is assigned to the Miscellaneous Standards Board. Efforts are being made to cut down the work of the Miscellaneous Standards Board and to see that every standard is the responsibility of the Board in the field in which the project falls.

What criteria are used in judging whether a standard can be approved under the Existing Standards Method?

There must be evidence that the standard has been developed by some procedure that has given an opportunity for comment by those concerned other than the developing organization and that its technical content is sound. The organization which submits the standard for recognition as an American Standard has the burden of canvassing the entire industry wherever an interest might be expected. It also has the responsibility of demonstrating by an answer from these organizations that a consensus has been reached. If such a survey has not been made it devolves on the ASA itself to do it. ASA is prepared to do so. For example, in one case, Underwriters' Laboratories submitted a standard with the record of its acceptance. However, ASA staff pointed out that the National Safety Council had not been consulted. The Council represented an important interest in this case. It was immediately consulted.

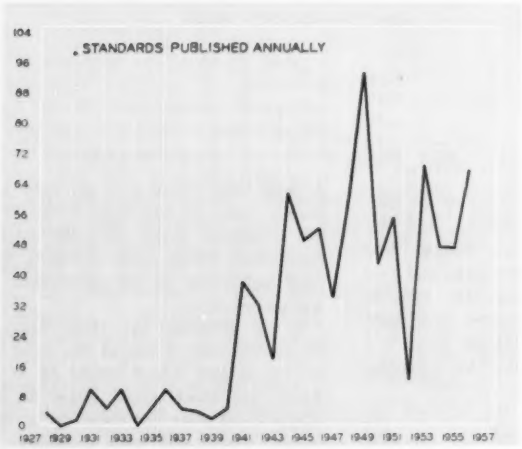
Is there any tie-in between ASA work and the work of the National Bureau of Standards?

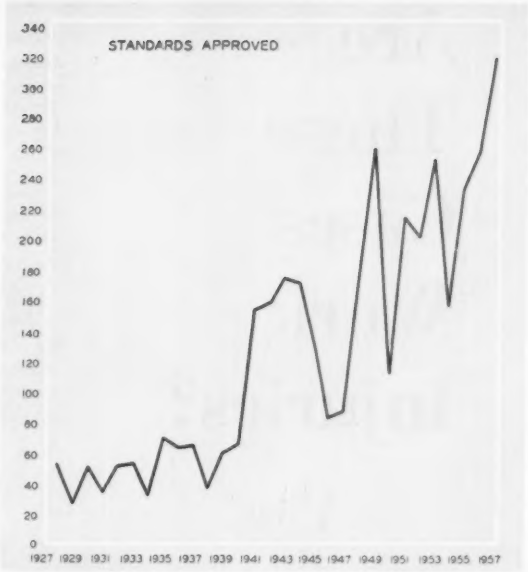
The Bureau works on standards primarily concerned with measurement, and theirs is a government function. ASA is a free-enterprise function. NBS is sponsor for 20 standards projects under ASA procedure. Many American Standards are based principally on research done by the Bureau. The Bureau is also represented on the Acoustical, Electrical, Nuclear, and Safety Standards Boards.

American Standards Published by ASA

Standards Approved as American Standard

Statistics presented by Vice Admiral G. F. Hussey, Jr, USN (Ret.), ASA Managing Director, on activities of the American Standards Association, included charts on American Standards approved and published by ASA. The chart at right shows how the number of standards approved by ASA has increased since approval of the first American Standard by the American Engineering Standards Committee. The chart below





shows the gradual growth in publication of American Standards by ASA. The drop in ASA publishing shown in 1952 and the sharp increase in 1953 reflects the adjustment in ASA operations caused by the plenary meeting of the International Organization for Standardization held in New York in 1952. ASA was host to ISO on this occasion.

"THE TASK IS IMMENSE....."

— H. Thomas Hallowell

At the beginning of our industrial revolution, people still had time to wait for a whole month for the next mail boat. Today they get impatient if they miss the first section of a revolving door.

The steam locomotive was around for one hundred years. The diesel locomotive, which has replaced it, may not be with us for even twenty years until it becomes obsolete.

Developments in atomic energy, electronics, and automation are now speeding ahead at an infinitely faster clip than the first railroads had ever known. We are in greater danger than ever of creating chaos through diversity or freezing designs through lack of adequate standards operations.

The task ahead of us is immense. We are busy now, but we are going to be ten times busier in the future. There will be endless opportunities for everybody working the standards field. There will be more work for you in your own organizations — more work for us on the national and international scene — and probably much more work than any of us can hope to handle.

To meet this demand, we must try to be prepared and organized as well as we can. There should be no overlapping of efforts and no working at cross purposes. Wherever facilities for standards development exist, they should be utilized to the fullest extent.

Where standards have national scope and application, they can obviously benefit by getting approval as American Standard. This, as you know, can be done either by initiating a new project through ASA or by submitting an existing organization standard for ASA approval. It is a shame to have a good standard that has not the stamp of universal application.

Are These Cases Work Injuries?

Rulings of the Committee on Interpretations are now being issued on whether unusual industrial injury cases are to be counted as "work injuries" under the revised edition of American Standard Method of Recording and Measuring Work-Injury Experience, Z16.1-1954. Sponsors of ASA Sectional Committee Z16 are the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

Case numbers in the new series start with 400. The cases below represent the tenth installment in the series under the revised edition of the standard. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply.

Cases 400-500 are being reprinted with an index prepared by the National Safety Council. To make it easy to locate all cases applying to any section of the standard, the index is arranged both numerically by paragraph number of the standard and numerically by case number. Each index reference includes a brief description of the case. Reprints are 75 cents per copy, available from ASA. Liberal discounts are offered for quantity orders.

Case 516 (5.2)

An employee strained his back while closing the door of a cargo pit on an airplane. In order to close the door he had to stand on his toes and stretch. The employee did not report the injury until more than five weeks later. The doctor was of the opinion that the injury could be related to the employee's occupation.

Decision: This injury should not be included in the work injury rates. The committee concluded that there was no clear record of an incident as defined in paragraph 5.2(a).

Case 517 (5.14)

An employee who had received injuries in a fall from a ladder was given treatment, and returned to work. The following day he complained of considerable pain, and was given codeine for relief. The next day he complained of being nauseated, but completed the work day. The next two days he did not report for work because of the nausea. The plant doctor stated that the combination of pain and subsequent drugs could have caused the gastric upset. The company asked if 5.14 of the standard would apply in this case.

Decision: This injury should be included in the work injury rates as a disabling injury. The committee concluded that paragraph 5.14 applied only when illness resulted solely from the antitoxin or drugs used, and in this case the combination of pain and subsequent drugs had caused the absence from work.

Case 518 [A1.6(d)]

An employee was hired at one location to work on an assignment several miles away. He was immediately sent on a scheduled airline flight to the new location. After landing, the airlines jeep met him and another passenger to take them across the airfield to their destination.

While en route, the driver of the jeep turned to the right slightly, and the man in question lost his balance. The jeep made a sharp right turn, and two men fell from the jeep, the man in question hitting the ground very hard on his back, and striking his head very hard on the pavement. The company asked if 5.17 applied in this case.

The employee had not reached the location of his job, and had not had any contact with the company except that his travel from one location to the other had been paid for by the company. His accident was fatal.

Decision: This fatality should be included in the work injury rates. The committee concluded that paragraph 5.17 did not apply since there had been no accident to the common carrier (the jeep). The members believed that the travel at the time of the employee's fatality arose out of and in the course of his employment.

Case 519 (2.1)

An aged employee had an existing heart condition which was so chronic the doctor gave him a maximum of three years to live on the condition he retired from work. The employee did not retire, and was fatally stricken by a heart attack which arose out of and in the course of his employment. Compensation award was for only one year's disability. Question was whether this should be included in the rates and, if so, the proper time charge.

Decision: This fatality should be included in the work injury rates as a death case with a time charge of 6000 days. The committee concluded that the 6000 day time charge for any fatality served as an average, and took into account the variations in life expectancy of different individuals.

Case 520 (5.3)

A pipe fitter noted a small hard area in the palm of his right hand which was diagnosed as an early Dupuytren's contracture which could probably have been aggravated by his occupation, but not caused by it.

It was estimated that there might be 10 percent loss of use of the hand following surgery which would be in the future and which would absent the employee from work for about six or eight weeks. There was some disability, but no lost time.

The company asked both how to classify the incident, and also to which plant unit any lost time should be charged, since the employee had worked in different units over the years.

Decision: This injury should be included in the work injury rates on the basis that the doctor had stated that the employee's work aggravated the injury. The committee suggested that unless there were extenuating circumstances, the injury should be charged to the plant unit where the employee was working when the injury was reported. However, the members believed that if most of his exposure causing the injury had been in some other unit, then there might be some grounds for charging that unit.

Case 521 (5.2)

As an employee picked up a 100-pound bag of alfalfa meal to replace it on a pallet from which it had fallen, he felt a slight twinge in his back, but finished the shift. The next two days the department did not operate, but the employee called in the following day stating that he wouldn't be able to work that shift because of his back. He visited the company doctor who verified that he had a sore back, and estimated the employee would be out about a week.

The employee had a previous back condition; he'd had an operation on his back, and one previous disabling injury due to this back.

On production work in the company plants most 100-pound bags were handled by two men; however, many of the workers did handle 100-pound bags by themselves as part of their regular work every day.

Decision: This injury, as described, met the requirements of 5.2(a). The committee concluded that there was a clear record of an accident, and suggested that the company consult the doctor as to whether the injury could have arisen out of the incident in accordance with 5.2(b).

Case 522 (5.15)

While removing an appliance from a wooden crate, a service man received an injury to his right middle finger. He thought he had a piece of porcelain embedded in the finger and tried to remove it. Two days later he reported the accident, and the doctor removed a ½-inch wood sliver from the finger under a 2 percent procaine block which was normal procedure. He returned to his regular work, but approximately 1½ hours later he complained of swelling in his hand, and was sent back to see the doctor. Two specialists saw the finger, and it was discovered that circulation had failed to return to the digit. A dry gangrene developed, and about three weeks later the finger was amputated.

Laboratory and pathological tests did not disclose the cause of the trouble, and the doctors did not believe that the sliver itself had anything to do with the gangrene. All solutions and drugs were tested and found to be without defect, and novocaine or procaine had been used on the employee previously without ill effect.

Decision: This injury should be included in the work injury rates as a permanent partial disability with a time charge of 300 days. The committee concluded that the disability did not result solely from the drugs used, and, therefore, paragraph 5.15 applied in the sense that gangrene was equivalent to an infection.

Case 523 (5.1)

An employee was in a squatting position, attempting to break loose a manifold connection with 10-inch and 14-inch wrenches which were usually sufficient for this particular type of job. However, the manifold was so firmly stuck that he requested the help of a fellow worker, and when their combined pressure was still unable to break the connection they obtained larger wrenches and were finally able to break the connection.

At the time the employee was exerting the pressure he did not feel any pain, but later that day he felt a pain in the right groin area. The following morning he discovered a lump on the right side which was later found by the company doctor to be a hernia.

Decision: This injury should not be included in the work injury rates on the basis that it did not meet the requirements of parts (b) and (c) of paragraph 5.1.

Case 524 (5.3)

An employee who had injured his knee twice previously while working in the belly pit of a plane again bruised his knee while loading cargo. He was not able to recall any specific incident that occurred which actually injured his knee, but felt the injury was a result of working within the belly pits of the aircraft. The doctor could find nothing seriously wrong with the knee, but the employee lost 10 days from work and was put on restricted duty part of the time after that.

Decision: This injury should be included in the work injury rates. The committee concluded that this employee had aggravated his pre-existing condition while loading cargo.

Case 525 (5.4)

A physically handicapped employee who was afflicted by a severe arthritic condition, and moved about by use of crutches, seated himself on his chair by bracing the opposite side with one crutch to prevent the chair from sliding, and then shifted his weight into the chair since his handicap made it difficult for him to sit down in a normal manner. On one particular occasion his crutch and the chair slipped aside as he attempted to be seated, and he fell to the floor. The chairs had been used for four years without any similar incident or any report of their slipping unnecessarily.

There was no lost time until ten days later when the employee failed to report for work. The plant physician expressed doubt that the employee's condition was a result of the fall, but rather a result of the arthritic condition.

Decision: This injury should not be included in the work injury rates. The committee concluded that this employee was injured as a result of his physical deficiency, and it was quite probable that one without such a handicap would not have been injured under similar circumstances. The members did not believe that this injury arose out of and in the course of employment.

Case 526 (5.3)

An employee was a war veteran with a disability in his left knee which caused a limp or awkwardness in walking, although he was physically active and not too much bothered by it ordinarily. One day during a baseball game with a group of friends he twisted his ankle and received a sprain which did not prevent his returning to work. Four days later, while walking on a cinder-covered area in the plant he again twisted his ankle and lost some time from work.

Decision: This injury should be included in the work injury rates as a temporary total disability. The committee concluded that cinders were an invitation to sprained ankles whether there was a pre-existing weak knee or not, and that in this case the accident did not result solely from the pre-existing physical deficiency, but was contributed to by the irregular and probably unstable surface.

Case 527 (5.3)

An employee had previously had a knee injury described as "laceration of the posterior portion of the medial meniscus." While engaged in cleaning a washroom he turned around and felt a twinge in his knee. He was not lifting, scrubbing the floor, or doing anything except turning around. He was expected to lose two to three months while recovering.

Decision: This injury should be included in the work injury rates. The committee concluded that the injury did not result *solely* from the pre-existing physical deficiency, but the incident which produced the injury aggravated the pre-existing condition.

Case 528 (5.2)

An employee engaged in tearing out some wooden partitions was in the process of dragging a light-weight wooden gate down a short flight of outside wooden steps. In stepping from the last step to the ground he misjudged the distance, and his foot landed on the ground with more impact than it would have done had he looked where he was going. His view was not obstructed by the gate he was dragging. He experienced a pain in his back at the time, but continued to work.

Upon learning of the incident, the employee's supervisor sent him to the medical department where he was examined and given treatment. Two days later, after further examination and treatment at the medical department, the employee was sent home for a period of two days.

Investigation disclosed that the riser at the bottom step was higher than the other steps, but this condition had existed for a long period of time, and the employee had used the same steps a number of times prior to the incident.

Decision: This injury should be included in the work injury rates. The committee concluded that the action of the employee's foot contacting the ground with greater than normal impact constituted an incident contributing to the back injury.

AMERICAN STANDARDS UNDER WAY

Status as of May 28, 1957

Legend — *Standards Council* — Approval by Standards Council is final approval as American Standard; usually requires 4 weeks. *Board of Review* — Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks. *Standards Board* — Approves standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks.

Note — Send check when ordering standards listed as published to avoid service charge for handling.

BUILDING AND CONSTRUCTION

American Standards Approved

Abrasion of Coarse Aggregate by Use of the Los Angeles Machine, Method of Test for, ASTM C 131-55; ASA A37.7-1957 (Revision of ASTM C 131-51; AASHO T96-51; ASA A37-1954)

Distillation of Tars and Tar Products, Method of Test for, ASTM D 20-56; ASA A37.9-1957 (Revision of ASTM D 20-52; AASHO T52-52; ASA A37.9-1954)

Sieve Analysis of Mineral Filler, Method of Test for, ASTM D 546-55; ASA A37.14-1957 (Revision of ASTM D 546-41; AASHO T37-42; ASA A37.14-1943)

Unit Weight of Aggregate, Method of Test for, ASTM C 29-55; ASA A37.16-1957 (Revision of ASTM C 29-42; AASHO T19-54; ASA A37.16-1948)

Making and Curing Concrete Compression and Flexure Test Specimens in the Field, Method of, ASTM C 31-55; ASA A37.17-1957 (Revision of ASTM C 31-49; ASA A37.17-1951)

Compressive Strength of Molded Concrete Cylinders, Method of Test for, ASTM C 39-56T; ASA A37.18-1957 (Revision of ASTM C 39-49; AASHO T22-49; ASA A37.18-1951)

Organic Impurities in Sands for Concrete, Method of Test for, ASTM C 40-56T; ASA A37.19-1957 (Revision of ASTM C 40-48; ASA A37.19-1951)

Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate, Method of Test for, ASTM C 88-56T; ASA A37.23-1957 (Revision of ASTM C 88-46T; AASHO T104-46; ASA A37.23-1948)

Lightweight Pieces in Aggregate, Method of Test for, ASTM C 123-53T; ASA A37.25-1957 (Revision of ASTM C 123-44; AASHO T113-45; ASA A37.25-1948)

Clay Lumps in Natural Aggregates, Method of Test for, ASTM C 142-55T; ASA A37.28-1957 (Revision of ASTM C 142-39; AASHO T112-42; ASA A37.28-1948)

Sampling Fresh Concrete, Method of, ASTM C 172-54; ASA A37.30-1957 (Revision of ASTM C 172-52T; ASA A37.30-1954)

Terms Relating to Materials for Roads and Pavements, Definition of, ASTM D 8-55; ASA A37.33-1957 (Revision of ASTM D 8-52; ASA A37.33-1954)

Emulsified Asphalts, Method of Testing for, ASTM D 244-55; ASA A37.42-1957 (Revision of ASTM D 244-49; AASHO T59-49; ASA A37.42-1951)

Distillation of Cut-Back Asphaltic Products, Method of Test for, ASTM D 402-55; ASA A37.45-1957 (Revision of ASTM D 402-49; ASA A37.45-1951)

Preformed Expansion Joint Fillers for Concrete (Nonextruding and Resilient Types), Specification for, ASTM D 544-49; ASA A37.49-1957 (Revision of ASTM D 544-41; AASHO M58-42; ASA A37.49-1948)

Emulsified Asphalt, Specification for, ASTM D 977-53; ASA A37.55-1957 (Revision of ASTM D 977-49; ASA A37.55-1951)

Cotton Mats for Curing Concrete Pavements, Specifications for, AASHO M73-49; ASA A37.60-1957 (Revision of AASHO M73-38; ASA A37.60-1948)

Subgrade Paper, Specifications for, AASHO M74-55; ASA A37.61-1957 (Revision of AASHO M74-38; ASA A37.61-1948)

Quality of Water to be Used in Concrete, Method of Test for, AASHO T26-51; ASA A37.62-1957 (Revision of AASHO T26-36; ASA A37.62-1948)

Ready-Mix Concrete, Specification for, ASTM C 94-55T; ASA A37.69-1957 (Revision of ASTM C 94-48; ASA A37.69-1951)

Air Content of Freshly Mixed Concrete by the Pressure Method, Method of Test for, ASTM C 231-56T; ASA A37.70-1957 (Revision of ASTM C 231-54; ASA A37.70-1954)

Steel for Bridges and Buildings, Specifications for, ASTM A 7-56T; ASA G24.1-1957 (Revision of ASTM A 7-55T; ASA G24.1-1956)
Sponsor: American Society for Testing Materials

Reaffirmation Being Considered

Residue of Specified Penetration, Method of Test for, ASTM D 243-36; AASHO T56-42; ASA A37.13-1943, R1948
Sponsor: American Society for Testing Materials

Project Initiated

Mounting Dimensions of Door Locks and Flush Bolts
Requested by: National Builders' Hardware Association

CHEMICAL INDUSTRY

American Standard Published

Procedure for the Acceptance of an American Standard Common Name for a Pest Control Chemical, K62.1-1956 $0.50
Sponsor: U.S. Department of Agriculture

ELECTRIC AND ELECTRONIC

American Standards Published

Measurement of Pulse Quantities, Methods of, 55 IRE 15.S1; ASA C16.28-1956 $0.60
Sponsor: Institute of Radio Engineers

Cord Sets and Power-Supply Cords, Standards for Safety, C33.3-1957 $0.50
Sponsor: Underwriters' Laboratories

Automatic Station Control, Supervisory, and Telemetering Equipments, C37.2-1956 $1.30

Step-Voltage and Induction-Voltage Regulators, Requirements, Terminology, and Test Code for, C57.15-1949 (Editorial Consolidation with C57.25-1949) $2.00
Sponsor: Electrical Standards Board

Electron Tube Bases, Caps, and Terminals, NEMA 500-D; RETMA ET-103-D; ASA C60.1-56 $1.10

Dimensional Characteristics of Electron Tubes, NEMA 502-C; RETMA ET-105-C, ASA C60.2-1956 $0.50

Gauges for Electron Tube Bases, NEMA 503-C; RETMA ET-106-C; ASA C60.7-1956 $0.65
Sponsor: Joint Electron Tube Engineering Council

Lightning Arresters for Alternating-Current Power Circuits, AIEE 28; ASA C62.1-1957 $0.60
Sponsor: American Institute of Electrical Engineers

Panel Mounting Racks, Panels, and Associated Equipment, Nomenclature and Dimensions for, RETMA SE-102; ASA C83.9-1956 $0.25

Rectangular Waveguides, Requirements for, RETMA TR-108-A; ASA C83.10-1956 $0.25

Metal Encased Fixed Paper Dielectric Capacitors for D-C Application, Requirements for, RETMA TR-113-A; ASA C83.11-1956 $0.65

Cable Connectors for Audio Facilities for Radio Broadcasting, Requirements for, RETMA TR-118; ASA C83.12-1956 $0.25

Wire-Wound Power-Type Rheostats, Requirements for, RETMA TR-133; ASA C83.13-1956 $0.45

Rigid Coaxial Transmission Lines — 50 Ohms, Requirements for, RETMA TR-134; ASA C83.14-1956 $0.25

Electrolytic Capacitors (For Use Primarily in Transmitters and Electronic Instruments) Requirements for, RETMA TR-140; ASA C83.15-1956 $0.40
Sponsor: Radio-Electronics-Television Manufacturers Association

American Standards Approved

Electrically Heated Pads and Bedding, Safety Standard for, C33.7-1957
Sponsor: Underwriters' Laboratories

Definitions of Electrical Terms, (partial revision of C42-1941)
Group 10, Rotating Machinery, C42.10-1957
Group 30, Instruments, Meters, and Meter Testing, C42.30-1957
Sponsor: American Institute of Electrical Engineers

In Board of Review

Outlet Receptacles, Attachment Plug Caps, and Appliance Plugs, C73.1- (Revision of C73.1-1941 and C73a-1953)
Sponsor: National Electrical Manufacturers Association

In Standards Board

Grounding and Bonding Equipment, Safety Standard for, C33.8-
Sponsor: Underwriters' Laboratories

400-Watt BT-37 Fluorescent Mercury Vapor Lamp, Dimensional and Electrical Characteristics of, C78.1304-

400-Watt BT-37 Mercury Vapor Lamp, Dimensional and Electrical Characteristics of, C78.1305-
Sponsor: Electrical Standards Board

Reaffirmation Being Considered

Electricity Meters, Code for, C12-1941, including Supplement, C12a-1947
Sponsors: Electric Light and Power Group; National Bureau of Standards

MATERIALS AND TESTING

American Standards Published

Gypsum and Gypsum Products, Methods of Testing, ASTM C26-56; ASA A70.1-1957 $0.30

Pyrometric Cone Equivalent (PCE) of Refractory Materials, Method of Test for, ASTM C 24-56; ASA A111.4-1956 $0.30
Procedures for preparation of sample and test cones, mounting, heating for determining the pyrometric cone equivalent (PCE) of fire clay, fireclay brick, and silica fire clay by comparison of test cones with Standard Pyrometric Cones (PCE).

Fireclay Refractory Brick, Classification of, ASTM C 27-56; ASA A111.5-1956 $0.30
This classification pertains to machine-made fireclay refractory brick, and its purpose is to set forth the various classes and types of these materials in accordance with their normal and characteristic properties which are important in their use.
Sponsor: American Society for Testing Materials

American Standards Approved

Structural Steel for Locomotives and Cars, Specification for, ASTM A 113-56; ASA G39.1-1957 (Revision of ASTM A 113-54; ASA G39.1-1956)
Sponsor: American Society for Testing Materials

Alloy Designation System for Wrought Aluminum, H35.1-1957
Sponsor: Aluminum Association

In Standards Board

Felted and Woven Fabrics Saturated with Bituminous Substances for Use in Water-proofing and Roofing, Methods of Sampling and Testing, ASTM D 146-56; ASA A109.10- (Revision of ASTM D 146-47; ASA A109.10-1955)

Disintegration of Fireclay Refractories in an Atmosphere of Carbon Monoxide, Method of Test for, ASTM C 288-56; ASA A111.35-(Revision of ASTM C 288-54; ASA A111.35-1955)

Chemical Analysis of White Pigments, Methods of, ASTM D 34-56T; ASA K15.1-(Revision of ASTM D 34-51T; ASA K15.1-1956)
Sponsor: American Society for Testing Materials

MECHANICAL

American Standard Approved

Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specification for, ASTM A 194-56T; ASA G38.1-1957
(Revision of ASTM A 194-55T; ASA G38.1-1956)
Sponsor: American Society for Testing Materials

In Standards Board

Transmission Roller Chains and Sprocket Teeth, B29.1-(Revision of B29.1-1950)

Inverted Tooth (Silent) Chains and Sprocket Teeth, B29.2-(Revision of B29.2-1950)
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Five-Quart and One-Gallon Round Motor Oil Cans, Requirements for, B64.2-(Revision of B64.2-1954)

Reaffirmation Approved

Large Rivets, B18.4-1950
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Withdrawal Being Considered

Surface Roughness and Lay, Physical Specimens of, B46.2-1952
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

MEDICAL

Project Initiated

Filters for Biologicals and Sterile Pharmaceuticals
Recommended by: American Drug Manufacturers Association

MINING

Withdrawal Being Considered

Fire Fighting Equipment in Metal Mines, M17-1930
Sponsors: American Mining Congress; National Fire Protection Association

NUCLEAR ENERGY

In Board of Review

Glossary of Terms in Nuclear Science and Technology, N1.1-
Submitted by: National Research Council

PETROLEUM PRODUCTS AND LUBRICANTS

American Standards Published

Knock Characteristics of Motor Fuels by the Motor Method, Test for, ASTM D 357-56; ASA Z11.37-1956 $0.30

Knock Characteristics of Motor Fuels by the Research Method, Test for, ASTM D 908-56; ASA Z11.69-1956 $0.30
Sponsor: American Society for Testing Materials

Selected Values of Physical and Thermodynamic Properties of Hydrocarbons and Related Compounds, Z78.1-1957 $7.00
Sponsor: American Petroleum Institute

PHOTOGRAPHY

American Standards Published

Para-Hydroxyphenylglycine, Specifications for, PH4.128-1956 $0.35

Photographic Grade Pyrogallic Acid, Specifications for, PH4.130-1956 $0.25

Photographic Grade Sodium Thiocyanate, Specifications for, PH4.177-1956 $0.25

Photographic Grade Potassium Chloride, Specifications for, PH4.202-1956 $0.25

Photographic Grade Sodium Chloride, Specifications for, PH4.203-1956 $0.25

Photographic Grade 5-Methylbenzotriazole, Specifications for, PH4.205-1956 $0.25

Photographic Grade Sodium Hydroxide, Specifications for, PH4.225-1956 $0.25

Photographic Grade Potassium Hydroxide, Specifications for, PH4.226-1956 $0.25

Photographic Grade Potassium Carbonate, Specifications for, PH4.229-1956 $0.25

Photographic Grade Ammonium Hydroxide, Specifications for, PH4.232-1956 $0.25
Sponsor: Photographic Standards Board

In Standards Board

Paper Sheets for Photo-Reproduction of Documents, Dimensions of, PH5.2-

Practice for Storage of Microfilm, PH5.4-
Sponsor: American Library Association

Projected Image Area of 16mm Motion-Picture Film, PH22.8- (Revision of Z22.8-1950)

Projected Image Area of 8mm Motion-Picture Film, PH22.20- (Revision of Z22.20-1950)

16-Tooth 35mm Motion-Picture Projector Sprockets, PH22.35- (Revision of Z22.35-1947)

Photographic Sound Record on 16mm Prints, PH22.41- (Revision of Z22.41-1946)
Sponsor: Society of Motion Picture and Television Engineers

Reaffirmation Being Considered

Zero Point for Focusing Scales on 16mm and 8mm Motion-Picture Cameras, PH22.74-1951
Sponsor: Society of Motion Picture and Television Engineers

Withdrawal Being Considered

Theater Projection Screens, Dimensions for, Z22.29-1948

Mounting Frames for Theater Projection Screens, Dimensions for, Z22.78-1950
Sponsor: Society of Motion Picture and Television Engineers

PIPE AND FITTINGS

American Standard Published

Stainless Steel Pipe, B36.19-1957 $1.00
Sponsors: American Society of Mechanical Engineers; American Society for Testing Materials

American Standards Approved

Computation of Strength and Thickness of Cast Iron Pipe, Manual for, A21.1-1957 (Revision of A21.1-1939)
Sponsors: American Gas Association; American Society for Testing Materials; American Water Works Association; New England Water Works Association

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves, and Parts for High-Temperature Service, Specifications for, ASTM A 182-56T; ASA G37.1-1957 (Revision of ASTM A 182-55-T; ASA G37.1-1956)
Sponsor: American Society for Testing Materials

SAFETY

American Standard Published

Maximum Acceptable Concentration of Carbon Tetrachloride, Z37.17-1957 $0.50
Maximum acceptable concentration of carbon tetrachloride for industrial exposures of workmen, not to exceed a total of 8 hours daily. Includes brief discussion of toxic properties, sampling procedures, analytical methods. Includes a bibliography of technical literature on this hazard.
Sponsor: American Industrial Hygiene Association

American Standard Withdrawn

Inert Gas for Fire and Explosion Prevention, NFPA 12A, ASA Z12.10-1943
Sponsor: National Fire Protection Association

New Project Requested

Safe Use of Cleaning Solvents in Graphic Arts Industry
Requested by: Research and Engineering Council of the Graphic Arts Industry

WHAT'S NEW ON AMERICAN STANDARDS PROJECTS

Road and Paving Materials, A37—

Sponsor: American Society for Testing Materials

The approval of one reaffirmation and 21 revisions submitted under this project by ASTM as sponsor has brought this extensive list of American Standards up to date.

Common Names for Pest Control Chemicals, K62—

Sponsor: U.S. Department of Agriculture

Upon request of the sponsor and the manufacturers of pest control chemicals, ASA has agreed to provide, on a fee basis, the services required by Sectional Committee K62 in considering proposed common (or coined) names submitted for ASA approval. The potential savings in time and space in the use of the common name versus the chemical is illustrated by the example of a popular pesticide known as "chlordane," whose systematic chemical name is:

1,2,3,4,5,6,7,8,8-octachloro-2,3,3*a*,4,7,7*a*-hexahydro-4,7-methanoindene

The name "chlordane" was previously approved under the procedure of the Interdepartmental Committee on Pest Control which the K62 procedure replaces. Approval as an American Standard Common Name will be given only after the name has been released for use in the public domains. The name is intended to apply only to the 100 percent pure chemical.

Electric Lamps, C78—

Sponsor: Electrical Standards Board

A code number system for the identification of mercury lamps is now before the C78 Sectional Committee for approval as American Standard Method for the Designation of Mercury Lamps, C78.380. This designation system, which will be administered by the ASA, will assure the interchangeability of mercury lamps which bear the same designation.

Electrical Devices and Materials with Relation to Fire and Casualty Hazards, C33—

Sponsor: Underwriters' Laboratories

Another in the series of standards falling within the scope of project C33, under the proprietary sponsorship of Underwriters' Laboratories, American Safety Standard for Electrically Heated Pads and Bedding, C33.7-1957, has been approved and will soon be available. This is part of the continuing program of the Underwriters' Laboratories to transmit for approval as American Standards many of the Underwriters' Laboratories standards.

Drawing and Drafting Practice, Y14—

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

Proposed revisions of the more basic sections of Y14.1-1946 have now received sectional committee approval and are in the hands of the sponsors for recommendation to ASA. This greatly expanded revision is to take the form of a manual of some 18 sections, the first five of which will deal with the principles and practices applicable to basic engineering drawings. Subsequent sections will deal with practices used in cases of specialized materials or fabricating methods.

Of particular significance is Section 5 on Dimensioning and Notes—which for the first time will include methods for tolerancing of form and position. The theory of liberalizing inspection requirements, as maxi-

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mum metal conditions are departed from, is also covered.

Section 5 will be the major subject and the basis for discussion by ASA delegates at an ABC conference to be held in October, 1957. Preliminary appraisal of the degree of unification attained by USA, UK, and Canada in their respective drafting standards indicates a 90 percent "understandability" of each others' drawings and practices.

Gas Burning Appliances, Z21—

Sponsor: American Gas Association

At its meeting in March 1957, Committee Z21 approved addenda to 3, revisions of 15 and reaffirmation of four American Standards. The sponsor has now submitted these to ASA for approval. In addition, it authorized two Working Groups. The first is to study the advisability of placing all comfort heating appliances under a single subcommittee. These appliances are becoming increasingly competitive due to advances in design, with consequent improved performance; yet for safety reasons and in geographic areas each must often be installed in different ways. The second working group will meet on June 10 with one appointed by ASA C1 (National Electrical Code) to eliminate conflicts between Z21.30-1954, Installation of Gas Piping and Gas Appliances in Buildings (Not Applicable to Undiluted Liquefied Petroleum Gas), and C1-1956.

Filters for Biologicals and Sterile Pharmaceuticals, Z81—

Sponsor: American Drug Manufacturers Association

The American Drug Manufacturers Association has agreed to serve as Administrative Sponsor. Preliminary steps in the organization of an ASA sectional committee are in process. The objectives of the work are to make possible reliable and consistent filtering in the processing of biologicals and sterile pharmaceuticals, including polio vaccine.

Standards Outlook

by LEO B. MOORE

Mr Moore is Assistant Professor of Industrial Management of Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

Standards Community Challenge

One outstanding aspect of truly professional people is the willingness, yes even anxiousness, to rise to opportunity and to sense responsibility where others may find none. May we here consider two such challenges to the professional stature of standards engineers that now lie before us in the area of the small company and of the local hospital. Both are a part of our civic and industrial community in more than a physical sense and merit special standards consideration.

For our purposes we might consider that the typical industrial community consists of one or two larger companies surrounded by many smaller companies, by homes, schools, and the local hospital. Flowing through these are the citizens of this community who gain, in the special area of standards, the advantages that arise from the judicious employment of standardization principles. Although many of these citizens may not be aware of the total standards effort in the community, in the long run there accrue to them substantial gains, not the least of which is economic.

The small companies feed and are fed by the larger companies. To some extent the final effectiveness of the larger units is controlled by the efficiency of the smaller ones. But how much? This figure will vary for specific cases. On an average perhaps 30 to 60 percent of the purchases of larger companies of goods and services are placed with small businesses. Many large enterprises are essentially assembly operations, placing purchased parts in their proper relationship and providing special processing to produce the finished output. It is abundantly clear that the cost, quality, and other aspects of the purchased items have profound influence upon the operations of the larger company. Is the purchase specification, with all of its helpful data and information, enough?

The community hospital, like most hospitals, is run in a true spirit of service to the community. For years it has probably managed to exist by soliciting funds to pay for its operations and has had little concern for the fine points of management as known and practiced by the industrial members of the community. The pressure of ever-increasing costs and of ever-lessening gifts has sorely brought to the attention of hospital managements the fact that more effective tools and techniques are needed to meet the future. Are the standards of the medical profession, with all that profession means to the health and welfare of the patient, enough?

Here in our own community then is the challenge of today that calls for our action. Practicing standards engineers have here an opportunity to be of professional service, not out of sheer altruism, but because in the long run it is good sense, good business, and worthwhile community endeavor.

23X

Do you know these numbers?

To identify the functions of devices used in partially automatic and automatic switchgear and in many types of manual switchgear (connected with electric power substations and generating stations) use device function numbers defined in **American Standard Automatic Station Control, Supervisory, and Associated Telemetering Equipments, C37.2-1956** (revision of 1945 edition) $1.30.

Prepared by the Automatic and Supervisory Control Subcommittee of the American Institute of Electrical Engineers' Committee on Substations. Considered and approved by Sectional Committee C37. Recommended by C37 to ASA for approval as American Standard.

Device function numbers defined in C37.2-1956 are for use on electrical diagrams, drawings, in instruction books, publications, specifications, and on or near each device in the assembled equipment.

L/S 20

90V

52BT

In C37.2-1956 you will find:

- List of standards applicable to apparatus used in automatic station control, supervisory, and associated telemetering equipments
- Specifications concerning service conditions
- Definitions of devices covered
- Specifications concerning rating an equipment or device
- Temperature limitations
- Tests
- Suggested minimum protection to be provided
- Method of representing device contacts on drawings
- List of device function numbers

43/A

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Examples of device function numbers: 23 means "temperature control device," X "auxiliary relay," 90 means "regulating device," V voltage, volts, or vacuum; 20 means "electrically operated valve," LS "inductive shunt"; 43 means "manual transfer or selector device," A "accelerating"; 52 means "a-c circuit breaker," BT "bus tie." Letters placed below the number denote parts of the main device; letters following the number denote auxiliary devices or conditions or electrical quantities which form part of the device.